QUESTIONNAIRE FOR REVIEW
of the
COMPUTER SCIENCE PROGRAM

submitted by

Grambling State University
Institution

July 1, 2011
Date

to the
Computing Accreditation Commission

Primary contact: **Yenumula B. Reddy**

Telephone number: **(318) 274-2421** **FAX Number:** **(318) 274-6388**

Electronic mail: **ybreddy@gram.edu**

COMPUTING ACCREDITATION COMMISSION

ABET, Inc.
111 Market Place, Suite 1050
Baltimore, MD 21202-4012
Phone: 410-347-7000
Fax: 410-625-2238
Email: cac@abet.org
Website: http://www.abet.org

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BACKGROUND INFORMATION

A. Contact Information

List name, mailing address, telephone number, fax number, and e-mail address for the primary pre-visit contact person for the program.

Dr. Evelyn Wynn, Interim Dean
College of Arts and Sciences
P. O. Box 4207
Grambling State University
Grambling, LA 71245
Off: 318-274-3225/6135
Fax: 318-274-3344
Email: wynne@gram.edu

B. Program History

Include the year implemented and the date of the last general review. Summarize major program changes with an emphasis on changes occurring since the last general review.

Grambling State University was founded in 1901 with a mission of educating African American citizens of North Central Louisiana. Under the leadership of Charles P. Adams, the university focused on areas of training students in 1) improving methods of farming, 2) preparing and preserving foods, 3) improving health/sanitary conditions, and 4) buying and building homes. In 1928, the school offered two year professional certificates and diplomas after becoming a state junior college. The school was renamed the North Louisiana Agricultural and Industrial School. The school was later renamed Louisiana Negro Normal and Industrial Institute. As the school grew, the first bachelor's of science degree was awarded in 1944 in elementary education. In 1946, the institution's name was changed to Grambling College. The school began to transform into a multipurpose college and added to its curricula programs in the sciences, liberal arts, and business. By 1974, Grambling College added a graduate school and became Grambling State University.

Four years prior to the institution being named Grambling State University, the Bachelor of Science degree in Computer Science was established in 1970, becoming one of the oldest Computer Science Programs in Louisiana. The program is undergirded with a purpose to provide undergraduate students with a firm training in computational skills and to enhance students' comprehension and logical reasoning skills to enable them to perform effectively as they undertake professional careers in computer science. The Computer Science Program was initially accredited by the Computing Sciences Accreditation Board (CSAB) and Computer Science Accreditation Commission (CSAC) now conducted by the Computing Accreditation Commission (CAC) of Accreditation Board for Engineering and Technology (ABET) in 1997. The accreditation of Computer Science Program was reaffirmed in 2000 by CSAC and in 2006 by CAC of ABET.

A number of major program changes since the last ABET CAC in 2006 have been made. The changes, as outlined below, were implemented in AY 2009-2010 and are ongoing through fall 2011.

The major program changes are summarized as follows:

- Added BIOL 407: Ethics in Scientific Research as a substitute for PA 201: Ethics for Public Service. BIOL 407 explores issues in scientific research through the examination of related literature. The case study approach is used to explore and debate ethical dilemmas, ethical behaviors, and ethics in professional practices. STEM majors, including CS students, are encouraged to take the course. The implementation of this course will begin in fall 2011.

- Revised course content for CS 456: Special Topics in Computer Science and CS 405: Software Development, the capstone course. Both courses include the following areas of study: modeling and simulations, high performance computing (parallel processing), distributed databases, machine learning, web security, mobile computing, and wireless sensors. The revision of course content occurred in fall 2010.

- Changed the instructional teaching approach of CS 110: Computer Science I after realizing a significant downward trend in student performance and student retention over a three year period from AY 2007/2008, 2008/2009, and 2009/2010. A set of mini projects were used to enhance student understanding in the use of algorithms and problem solving abilities. The instructional strategies were implemented beginning fall 2010.

- Currently, modifying the curriculum to reduce the number of course credits from 125 to 120 as mandated by the Louisiana Board of Regents during AY 2010/2011. The proposed changes include elimination of one elective science course and one free elective course from the curriculum. This change will not impact the standards of the CS program and remains in alignment with ACM/ IEEE requirements. The reduction in course credits occurred in fall 2010, effective fall 2011.

C. Options

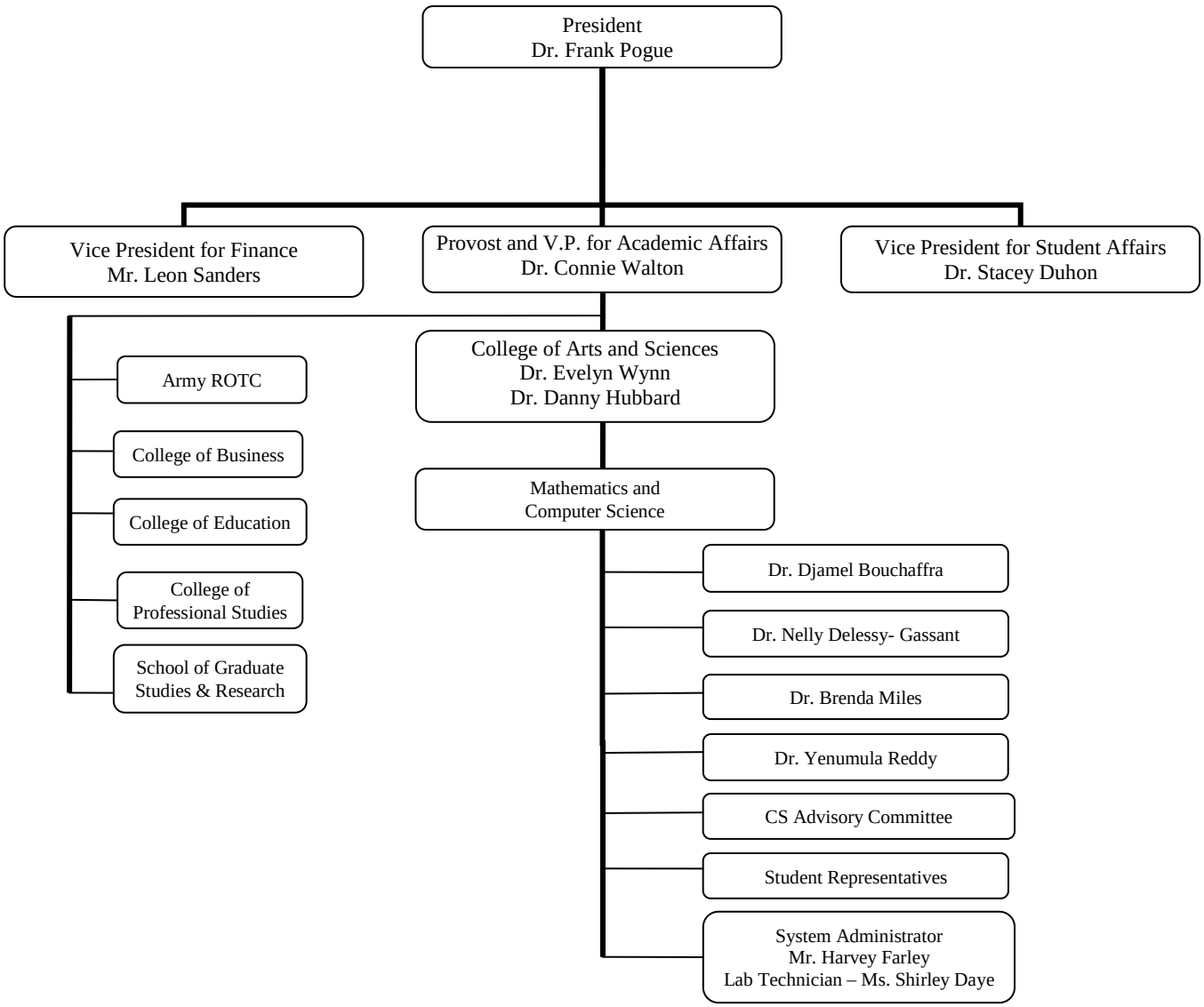
List and describe any options, tracks, concentrations, etc. included in the program.

There are no options, tracks, or concentrations included in the program. The total credit hours needed for graduation has not changed and remains at 125 credit hours during the preparation of this document. There are no options offered in the curriculum. The curriculum contains 46 credits of computer science, 35 credits in the cognitive sciences, and 44 credits of general education courses.

D. Organizational Structure

Using text and/or organizational charts, describe the administrative structure of the program (from the program to the department, college, and upper administration of your institution, as appropriate).

Organization Structure of the Computer Science Program



E. Program Delivery Modes

Describe the delivery modes used by this program, e.g., days, evenings, weekends, cooperative education, traditional lecture/laboratory, off-campus, distance education, web-based, etc.

Instruction in the Computer Science Program is delivered in various ways to enhance students' learning experience. They include use of the traditional lecture/laboratory format (face-to-face) and Web Enhanced format (Blackboard, Moodle, hybrid). Students are also provided opportunities to enroll in courses off-campus through the Inter-institutional cooperative program that exists between Grambling State University and Louisiana Tech University which is also accredited by ABET. This program makes it possible for students at one institution to enroll in courses at the other without the need to pay tuition at that other institution.

Grambling State University operates on the standard semester system. One semester credit hour represents one contact hour of lecture class meeting time or three laboratory hours of class meeting time per week. Courses are taught Monday through Friday on campus during day and evening hours.

F. Program Locations

Include all locations where the program or a portion of the program is regularly offered (this would also include dual degrees, international partnerships, etc.)

The Computer Science Program is offered on campus at Grambling State University. There are no remote locations. The Program is housed in Carver Hall (114,045 sq. ft), a three story-building that has two auditoriums each with a seating capacity of 100, two large classrooms each with a seating capacity of 60, eleven other classrooms each with a seating capacity of 40, a STEM resource center, twenty STEM instructional laboratories that can accommodate at least 25 students each, STEM administrative and faculty offices.

Deficiencies, Weaknesses or Concerns from Previous Evaluation(s) and the Actions Taken to Address Them

Summarize the Deficiencies, Weaknesses, or Concerns remaining from the most recent ABET Final Statement. Describe the actions taken to address them, including effective dates of actions, if applicable. If this is an initial accreditation, it should be so indicated.

A summary of accreditation actions for the 2007-2008 program evaluation was provided to the university on August 14, 2008 by the program review team of the Computing Accreditation Commission. The review team found no new deficiencies, weaknesses, or concerns during the visit. However, there were six concerns addressed during the visit that were noted during the previous program evaluation in 2005-2006. The report cited four concerns in the area of Objectives and Assessment; two concerns in the area of Curriculum; and one concern from Institutional support and Financial Resources. As noted in the narrative below, three of the four concerns were resolved in the Objectives and Assessment category; two concerns remained in Curriculum; and the concern in Institutional Support and Financial Resources was resolved.

The narrative that follows documents the process and/or actions taken to resolve all concerns noted with the program by strengthening the program assessment and curriculum. This process involved participation and input from all the program's constituencies – students, alumni, employers of our graduates, the advisory board, faculty, and the College of Arts and Sciences.

Objectives and Assessment

Concern (Standard I-3): Some aspects of the assessment process are new and not yet a systematic part of the program's culture. Thus, the effectiveness of the data collection process could not be fully evaluated.

Actions Taken: Continuing commitment to data collection for the assessment of program objectives and outcomes is evident. However, the documentation of the use of

these data in program assessment needs to be improved. Continued improvements in program assessment and effective data collection are encouraged. The faculty is committed to making these improvements, demonstrated by recent revisions of program objectives, program outcomes, rubrics, and metrics, all of which are necessary to meet the new criteria that will be effective at the next general review. Given the changes made to the process, the effectiveness of the data collection should be reviewed at the next general review.

Action Update: The University supported the travel for two CS faculty to attend an ABET sponsored conference on assessment in spring 2009. After the two CS faculty returned to campus, the CS faculty met as a whole to discuss improvements in the assessment process. Beginning in fall 2009, the data collection process was expanded (graded work and sample work from student projects); however, the faculty agreed to begin to modification of the assessment tools and the student outcomes during the calendar year of 2010. The faculty revised the student survey and alumni survey to better align assessment data with program educational objectives and expected student outcomes. This process is efficient because all constituencies are involved in the process and the process includes two feedback loops. The feedback loops help revise program educational objectives, student outcomes, and course contents.

Concern (Standard I-6): Although there is recent documentation of the results of the assessment process and the actions taken based on those results, the documentation of analysis of assessment results and actions taken are limited and follow-up discussions on the results of the effectiveness of these actions is lacking

Actions Taken: As noted by the previous visiting team, the spring 2006 Computer Science faculty program assessment committee minutes indicate that the faculty discusses results of assessment surveys. Additional committee meeting notes from the fall 2006, and Spring 2007 provide additional examples of assessment activities and discussion of proposed actions. Theses minutes provide evidence of an on-going process. However, the documentation of analyses of assessment results and actions taken are limited and follow-up discussions on the results of the effectiveness of these actions is lacking. During the site visit, the team was able to confirm that actions were taken and could find evidence that these actions led to improvements. Improved documentation of continuing analysis of the assessment data with feedback loops for actions taken is critical in understanding possible revisions and improving information provided for subsequent faculty program assessment meetings.

Action Update: Since 2009 assessment results and actions to collect assessment data was improved. Faculty members began discussion on the need to collect support documentation during faculty meetings. Also, the faculty began a more formal revision of the assessment in the calendar year 2010 (See Criterion 4, Section C for details). Support documentation in terms of sample work and graded assignments will be available for the site visit.

Curriculum Concerns:

Concern (Standard IV-7): Theoretical foundations, problem analysis, and solution design are stressed to a minimal level of compliance:

Actions Taken: The assigned problems and exam questions in several core and advanced courses reflect an appropriate faculty understanding of importance of theoretical concepts in the CS curriculum, and the team finds that the curriculum provides adequate coverage of theoretical concepts. The program requirements have been changed to include a required Capstone Course, and this course offers students the opportunity to complete a significant, open-ended individual or team project. The analysis and design projects in Software Engineering course also are valuable student learning experiences. However, students do not solve a significant number of increasingly complex, open-ended problems that require analysis and design throughout the curriculum.

Action Update: Currently, thirteen courses include small or large projects that require analysis and design. In particular, students
are provided opportunities to solve complex, open-ended problems that require analysis and design in the following courses throughout the program. On the junior-senior level, the following courses provide such opportunities: CS 310: Software Engineering; CS 405: Software Development, the capstone course; CS 414: Computer Architecture; CS 419: Computer Networks; CS 424: Advanced Programming Techniques; CS 456: Special Topics in Computer Science; and CS 459: Special Topics in Database Management.
On the freshman-sophomore level, the following courses provide opportunities for students to analyze and design open-ended questions: CS 110: Computer Science I, CS 120: Computer Science II, CS 225: Computer Organization and Assembly Language, CS 235: Data Structure, CS 320: Database management systems, and CS 360: Design and Analysis of Algorithms. Documentation can be found in student folders, demonstrating the theoretical concepts covered. In addition, Table 1 provides the student projects an overview of student projects during fall 2010 and spring 2011.

Concern (Standard IV-9): Some course content at the advanced level is minimally sufficient to build the breadth and depth expected of computer science graduates.

Actions Taken: The student work on the new Capstone Course projects demonstrates depth of knowledge and analysis and design abilities, but faculty member involvement in these projects is significant. The expectations of faculty for the complexity of projects covered in the CS seminar I and II course have increased with corresponding improvements in course depth and breadth. However, while progress is evident, the evidence of student achievement of the depth that is expected of CS graduates is not consistent throughout the advanced courses.

Action Update: The faculty members are committed to cover the depth and breadth of the subject in all classes. In CS 300: Computer Science Seminar I, students' tests, projects and homework assignments were modified to include more in-depth study of current topics including applying game theory to cognitive network, computer security,

computer graphics, and wireless security. Moreover, senior level courses, CS 405: Software Development; CS 424: Advanced Programming Techniques; and CS 456: Special Topics in Computer Science, were enhanced to include depth and breadth of study in pattern recognition, wireless sensor network, algorithms, social network, and adaptive sensors, python language, classical cryptography, web-based security, and sensors. Students are also provided opportunities to work individually and collaboratively on projects; some work on funded research projects and most involve analysis and design. Students' folders will be available for review during the site visit. Below is a list of student projects for fall 2010 and spring 2011.

Table 1: Student Projects in Fall 2010 and Spring 2011

Fall 2010	Spring 2011
Software Engineering Projects 1. University Registration – Monitoring Student Graduation Schedule 2. Electronic Store 3. Selection and play of songs through interactive mode (Graphical design) 4. Finding an Item in Wal-Mart Department Store 5. Video Games 6. Advising and monitoring the Fitness	**Capstone Course projects** 1. Security in Cloud Computing 2. Protecting Information Transformation in Wireless Sensor Network Using Collaborative Trust-based Algorithm 3. Health Conscious Food Menu 4. AtlasFIT-Fitness Trainer 5. Non-Traditional Strategic Form of a Zero-Sum Game Implemented with Software Defined Radio 6. An Expert Advisor to Criminal Layers for Judgment
Computer Architecture Projects 1. Cloud Computing 2. Multicore Architecture 3. Multicore Technology 4. Asynchronous Architecture 5. RISC-Architecture	**Network projects** 1. Fire walls 2. Protocols 3. Local Area Networks 4. Geographical Information Systems 5. Network Analysis
	CS 400 Computer Science Seminar 1. Computer Human Interaction 2. HoneyPots as a Data Security Measure 3. Cloud Computing 4. Protecting Information Transformation in Wireless Sensor Network Using Collaborative Trust and Agent Based Algorithm 5. Devotional App: Exploring the Implementation Android Application Development 6. Simple temperature detection system using WIRELESS SENSOR NETWORKS 7. Backtracking DDoS attacks

G. Joint Accreditation

Indicate whether the program is jointly accredited or is seeking joint accreditation by more than one commission.

The program is not jointly accredited and we are not seeking joint accreditation by more than one commission.

GENERAL CRITERIA

CRITERION 1. STUDENTS

For the sections below, attach any written policies that apply.

1. Student Admissions

Summarize the requirements and process for accepting new students into the program.

In 2002, the Master Plan for Public Postsecondary Education of the State of Louisiana set forth the minimum criteria for admission to four-year institutions in the Louisiana State University System, the Southern University System and the University of Louisiana System (ULS). Whereas most institutions had to meet these minimum criteria by 2005, Grambling State University and Southern University at New Orleans were given until fall 2010 to meet the criteria.

To meet this challenge, Grambling State University developed a transition plan that was approved by the ULS Board of Supervisors in February 2006. The transition plan involved an incremental change from open admissions to selectivity during the period from fall 2007 to the fall 2010. It began with criteria that any student who has prepared for college should easily meet. The university remains committed to access and opportunity. In-state students who do not meet the criteria for admission and whose deficiencies can be remedied with four or fewer courses will be invited to participate in a summer bridge program (Adams Bridge to College Program).

Admission to Grambling State University will be granted to students who meet the criteria for admission and who submit all application materials prior to the published admission deadline. Admission to the university is conditional until evidence of graduation from high school and completion of required core units are received. All students must submit the following items before the final acceptance process can be completed:

- Application for Admission
- Application fee of $20
- ACT or SAT scores
- Official High School Transcript (New Freshman Applicants)
- College Transcript (Transfer Applicants)
- Proof of Immunization and medical history
- Application Deadlines:
  Fall Semester-June 1st
  Spring Semester-December 1st
  Summer Sessions – May 1st

Additionally, letters of recommendations from teachers, counselors, principals, essay written by the student, leadership roles, community involvement, other exams/test score, and skills in talent areas may be considered.

Having met the challenge for instituting the minimum criteria for admission to four-year institutions in the Louisiana State University System, the Southern University System and the University of Louisiana System (ULS), the current minimum admission criteria at Grambling State University are outlined below. Additional information concerning admissions may be found at www.gram.edu.

The required admission standards for **first-time freshmen** are as follow.

Admission Criteria for Fall 2010 Louisiana High School Graduates		
Option 1	**Option 2**	**Option 3**
17.5 Required Core Units **AND**	17.5 Required Core Units **AND**	17.5 Required Core Units **AND**
Composite of 20 on ACT (or SAT equivalent of 940 – Verbal & Math combined) **AND**	High School GPA of 2.0 - (4.0 scale) **AND**	Rank in top 50% of HS graduating class **AND**
Require no more than one developmental course ACT English (18) or ACT Math (19) **OR** SAT Verbal (450) or SAT Math (460)	Require no more than one developmental course ACT English (18) or ACT Math (19) **OR** SAT Verbal (450) or SAT Math (460)	Require no more than one developmental course ACT English (18) or ACT Math (19) **OR** SAT Verbal (450) or SAT Math (460)

Admission Criteria for Fall 2010 - Out-of-State Students		
Option 1	**Option 2**	**Option 3**
Meet criteria in "Option 1" or "Option 2" for Louisiana students	Composite of 20 on ACT (or SAT equivalent of 940 – Verbal & Math combined) **AND**	Composite of 23 on ACT (or SAT equivalent of 1050 – Verbal & Math combined)
	High School GPA of 2.0 - (4.0 scale) **AND**	

	Require no more than one developmental course ACT English (18) or ACT Math (19) **OR** SAT Verbal (450) or SAT Math (460)	Require no more than one developmental course ACT English (18) or ACT Math (19) **OR** SAT Verbal (450) or SAT Math (460)

REQUIRED CORE UNITS	
Course	**Fall 2010 (units)**
English I, English II, English III, English IV	4
Algebra I or Applied Algebra 1A & 1B (two units); **Algebra II**; Geometry, Trigonometry, Calculus, or an approved Advanced Math Substitute	3
Biology; **Chemistry**; Earth Science, Environmental Science, Physical Science, Biology II, Chemistry, Physics, Physics II, or Physics or Technology	3
American History; World History, Western Civilization, or World Geography	2
Civics, Civics & Free Enterprise (one unit combined)	1
Fine Arts Survey (or substitute two units of performance courses in music, dance and/or theatre, or substitute two units of visual art, or substitute two units of studio art, or substitute one unit of an elective from among the other subjects listed in the core curriculum	1
Computer Science, Computer Literacy, or Business Computer Applications (or substitute at least one-half unit of an elective course related to computers approved by the State Board of Elementary & Secondary Education or one-half unit as an elective from among the other subjects listed in the core curriculum	.5
Foreign Language (Two units of the same language)	2
Advanced Mathematics or Advanced Science Course*	1

Those courses set off by semicolons must be taken and those separated by commas provide the students with choice.

*An additional unit of advanced math or advanced science from among the following courses: Geometry, Calculus, Pre-Calculus, Algebra III, Probability and Statistics, Discrete Mathematics, Applied Mathematics III, Advanced Mathematics I, Advanced Mathematics II, Integrated Mathematics III, Biology II, Chemistry II, Physics, or Physics II.

Admission Criteria for Transfer Students
(Effective Summer I 2010)

Students who have attended a regionally, accredited institution since graduating from high school are
considered transfer applicants. In order to be accepted to Grambling State University, transfer applicants must:

- submit an application fee of $20, and
- submit proof of immunization, and
- submit **official** transcript from **EACH** regionally, accredited institution attended, regardless if credits appear on another transcript. An official transcript is defined as one mailed directly from one institution to another. It bears the institution's seal, signature of the registrar, the date of issuance, and is issued to Grambling State University – Office of Admissions. (**Note:** A sealed transcript issued to the student is not official; it must be issued to us), and

• have earned a cumulative GPA of at least 2.0, and
• be in good academic standing and eligible to return to the last college or university of attendance, and
• have earned at least 18 hours of college-level coursework (excluding developmental courses), and
• require no developmental coursework.

If the transfer applicant has a cumulative GPA of at least 2.0, but has earned less than 18 hours of college-level
coursework (excluding developmental courses), the applicant must meet the admission criteria for new first-time
freshmen. NOTE: The applicant will be admitted as a transfer student, but will be evaluated using the new
freshman criteria.

Admission to the university is granted to anyone without regard to race, creed, or national origin, if requirements for admission are met.

Table 1. Admissions Data Over five year period

	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010
University Enrollment	5049	4584	5063	5947	4339
	Enrollment in Computer Science				
Full time students	78	74	99	99	79
Part time students	24	17	24	18	11

2. Evaluating Student Performance

Summarize the process by which student performance is evaluated and student progress is monitored. Include information on how the program ensures and documents that students

are meeting prerequisites and how it handles the situation when a prerequisite has not been met.

Student performance and progress are evaluated and monitored by several methods and vary by instructor. Throughout each course a student's performance is evaluated with the use of exams, quizzes, assignments, reports, and presentations. The final grade is determined by using a published grading system. Students are advised to retake courses in which they have earned a grade lower than that of a C.

Capstone projects, reports and presentations are graded by the departmental faculty. For the capstone experience, students are required to prepare and complete a project proposal, give an oral presentation and submit a final paper. The projects are presented to faculty in the form of an oral presentation with the use of visual aids (PowerPoint slides and completed circuits).

In the Computer Science Program, a student's academic progress is monitored by instructors, academic advisors, and the Registrar's Office. In an effort to assist in the monitoring of student success, the university requires faculty to report deficient mid-semester grades. These grades are entered electronically into Banner. Advisors can access these grades along with the student. Instructors submit final grades at the end of each semester to the Registrar's Office. Each student's transcript is viewed by advisors via the Banner Web technology system each semester to monitor the student's progress to ensure that he or she remains in good academic standing. Students who do not earn the required semester GPA to remain in good academic standing are placed on probation or academic suspension.

Each student receives a curriculum sheet upon the first visit with academic advisor. The curriculum sheet is used to assist in tracking the student's progress. The curriculum sheet outlines all required courses and has space available to record the grades earned. The student and advisor both have a copy of the curriculum sheet. As a course is completed the grade earned and semester that the course was taken is entered on the curriculum sheet.

Another method of monitoring a student's performance and progress towards completing the degree is the audit program found in the advisor's menu in Banner Web. The *degree audit* extracts information from the transcript and maps these courses against the requirements for the degree program. If the student has earned *a grade lower than a C* in a computer science class, the degree audit shows the course still needs to be taken.

Mathematics and Computer Science Graduates Enrolled in STEM Graduate Programs (1994- 2004; 2005 -2010)

Discipline of Graduate	% of graduates enrolling in graduate programs during 1994-2004	% of graduates enrolling in graduate programs during 2005-2010
Mathematics	0	44
Computer Science	3	20

3. Transfer Students and Transfer Courses

Summarize the requirements and process for accepting transfer students and transfer credit. Include any state-mandated articulation requirements that impact the program.

Transfer applicants are students who have attended another college and must apply as a transfer student, not as a first-time freshman. In order to be admitted to the university/department, transfer students must:

- Submit official transcripts from all accredited colleges/universities attended.
- Pay an application fee--$20 ($30 for international students)
- Be in "good academic standing" and eligible to return the last college or university of attendance.

Transfer Evaluations will reflect all college grades attempted and earned, according to the same policies and procedures in place for students at Grambling State University. Some courses require "C" or above grades to meet degree requirements. The degree program evaluates the courses taken at the transfer institution to determine if the courses are equivalent to the required courses at Grambling State University. Courses that are deemed to be equivalent in content are accepted toward degree requirement.

Transfer credits earned from institutions that are not accredited may not be recognized. For schools not regionally accredited, the university is guided in its decision regarding acceptance of credit by *Transfer Credit Practices of Designated Educational Institutions* for U.S. schools, publications from the American Association of Collegiate Registrars and Admissions Officers, by selected institutions in the states in which the schools are located and by the National Association of Foreign Student Affairs for schools outside the United States. Generally, applicants from non-accredited schools are given an opportunity, usually through advanced-standing examinations, to validate some or all of the credit earned.

4. Advising and Career Guidance

Summarize the process for advising and providing career guidance to students. Include information on how often students are advised, who provides the advising (program faculty, departmental, college or university advisor).

Advising

Following their acceptance to the university, new students entering the Computer Science program are assigned an advisor by the Advisement Coordinator. Students are required to meet with their advisor each semester to discuss course selections for the upcoming semester. During these times the advisor accesses the student's transcript via the *Banner System*. Once the courses are selected, the student and advisor sign-off on those courses through the completion of the *Academic Advising Contract*. Once the signatures are affixed, the advisor gives the student an Alternate PIN number that allows the student to enter classes into Banner Web (registration system). The student can only obtain the Alternate PIN number after he has been advised.

In addition to advising the student on the curriculum, advisors also provide support in career choices. Students may meet with their advisors at any time; however, students are strongly encouraged to meet at least twice a semester. These interactions support communication between the advisor and student. The department maintains a *folder* for each student. *Advisement Contracts* are kept in these folders.

To strengthen the advisement process, the Department is currently developing a tracking mechanism for efficient advising that can be accessed online. A sample page of the electronic page (AdviseMe) is presented below in Figure 1.1. The CS faculty are pilot testing the AdviseMe application and plan to do more testing in fall 2011 semester for student advising. Each faculty member in the department will be able to access the data stored in this application from his/her office. The application is designed to mimic the current advising process. It does not make any change to the process, but rather accelerates it. Figures 1.1 and 1.2 are screen snapshots of the interface for the adviseMe application.

Career Guidance

Office of Career Services

Career guidance is also provided by the Office of Career Services at Grambling State University. This centralized service provides assistance to students and alumni in developing job search skills and achieving employment. Students and alumni are able to access online job search engines including NACElink Search. A Career Services Bulletin is published that highlights employment opportunities. Additionally, Career Services hosts annual career opportunity conferences and a teacher's recruitment fair. Students may sign-up in the Career Services Center to interview with industry representatives who are on campus.

Career Services provides resume assistance and job interview tips. It conducts an exit interview of graduates as a method of gathering employment data. This information is analyzed and published and shared with other campus offices.

The office is staffed by a director, an assistant director, and a full-time clerical person. The office is located in Jacob T. Stewart Building, Room 221. The hours of operation are Monday through Friday, 8:00 a.m. - 5:00 p.m.

Career Guidance by the Computer Science department

Faculty advisors provide assistance to students in identifying computing job experiences. These experiences include summer internships (IBM, Wal-Mart, ChevronTexaco, Caterpillar, and State), cooperative education, and job placement. Job announcements are shared with advisees and discussions are held regarding employment opportunities. Tips are given to the student on how to market him/herself. Advisors critique resumes and cover letters and provide information on how to prepare for a successful interview. Additionally, the department of computer science sponsors student trips to technical and research conferences. At these conferences students have the opportunity to participate in job fairs. In addition, the local ACM chapter provides activities to help students prepare and network for their career.

Figure 1.1: Snapshot of the adviseMe application

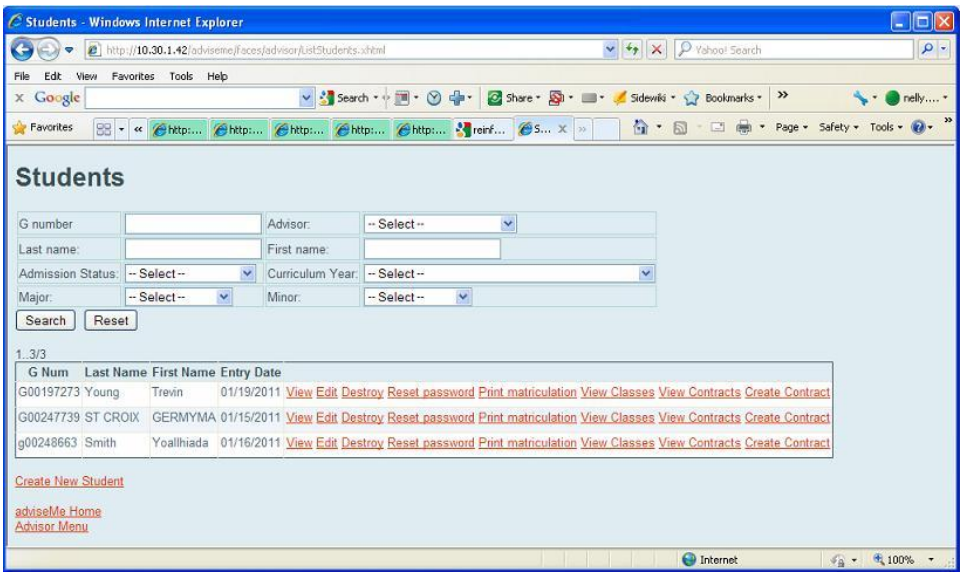
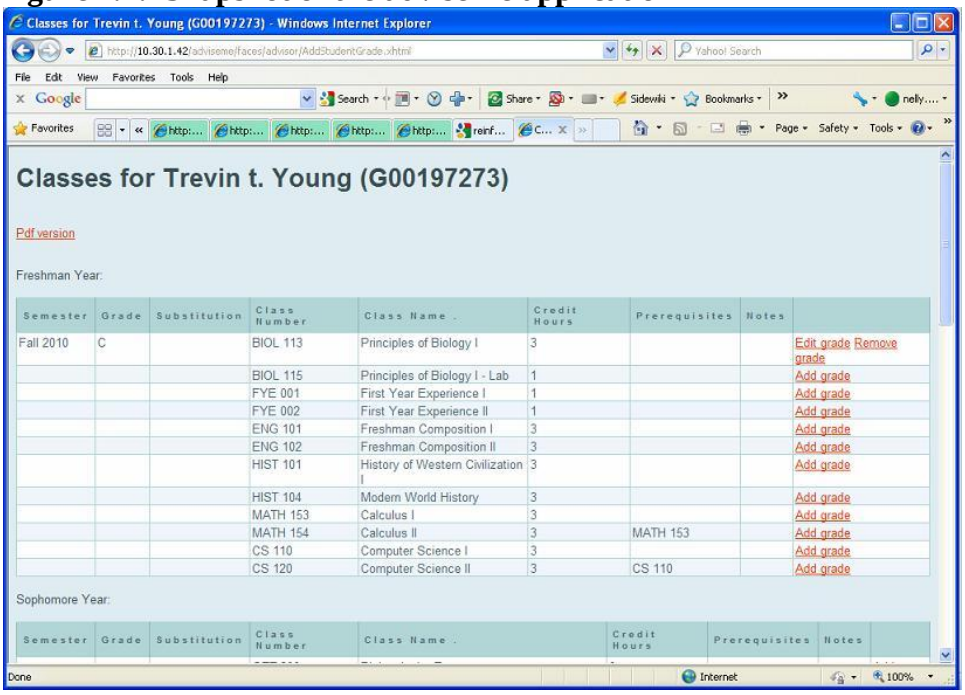


Figure 1.2: Snapshot of the adviseMe application



5. Work in Lieu of Courses

Summarize the requirements and process for awarding credit for work in lieu of courses. This could include such things as life experience, Advanced Placement, dual enrollment, test out, military experience, etc.

The university awards course credit for selected introductory courses to a student who makes an acceptable score on a number of examinations. These examinations include 1) Advanced Placement (AP); 2) the College-Level Examination Program (CLEP); and 3) credit by departmental examination. AP credit is offered for courses in art, history, biology, calculus, chemistry, computer science A, computer science AB, economics, English language and

composition, English literature and composition, foreign language, physics, psychology, statistics, and U. S. history. CLEP scores are accepted on a pass/fail minimum score requirement for Composition and Literature, Foreign language, History and Social Sciences, and Science and Mathematics categories. Details of the specific courses and score requirements are provided in the current 2009 -2011 University Catalog. The university does accept credit for dual enrollment courses and gives credit for course equivalency based on the (academic) articulation crosswalk matrix of the state of Louisiana.

6. Graduation Requirements

Summarize the graduation requirements for the program and the process for ensuring and documenting that each graduate completes all graduation requirements for the program. State the name of the degree awarded (Master of Science in Safety Sciences, Bachelor of Technology, Bachelor of Science in Computer Science, Bachelor of Science in Electrical Engineering, etc.).

Students completing all graduation requirements in the Computer Science Program are awarded the Bachelor of Science Degree in Computer Science. Students must complete the curricula as outlined in the University catalog: 46 credits of computer science, 35 hours of cognitive science in mathematics, and 44 credits of general education courses, totaling 125 credit hours. Student must earn the grade of "C" or better in all computer science courses. The student can earn no more than one grade of "D" to qualify for graduation. The student must also earn the required 2.0 GPA.

In order to ensure and document that each graduate completes all graduation requirements, the following process is followed:

- The student and academic advisor meet to review the student's transcript and course of study.
- Once the course of study review is complete and has been approved by the department head, the academic advisor with the student's lead completes an application for graduation based on a completed course of study signed by academic advisor.
- Once the student completes the application, the department head or his/her designee reviews the graduation application ensuring all requirements have been met or will be met during the semester in which the application is active.
- The department head forwards a completed application to the Dean's office.
- The Dean and the Associate Dean conduct a final review and approve the application for the College, prior to forwarding to the Provost's Office.
- The Provost's Office reviews and approves the graduation application and forwards to the Registrar's Office.
- The Registrar's Office conducts a final review of the graduation application.
- Finally, the Registrar's Office returns the approved graduation application to the Department Head and the Dean.
- After all courses that the student was enrolled in during the semester of graduation have been successfully completed, certification forms are signed by the Department Head and Dean and forwarded to the Provost's Office that forwards them to the Registrar's Office.

7. Transcripts of Recent Graduates

The program will provide transcripts from some of the most recent graduates to the visiting team along with any needed explanation of how the transcripts are to be interpreted. These transcripts will be requested separately by the team chair. State how the program and any program options are designated on the transcript. (See 2011-2012 APPM, section II.G.4.a.)

Official transcripts of seven graduates with associated worksheets and guidelines used by the advisors will be provided to the ABET during the site visit (See Appendix III). On the transcript, the program option is noted as the Bachelor of Science Degree College of Arts and Sciences.

CRITERION 2. PROGRAM EDUCATIONAL OBJECTIVES

A. Mission Statement

Provide the institutional mission statement.

Grambling State University's Mission Statement

The following mission statement was extracted from Grambling State University 2009-2011 Catalog at www.gram.edu:

> Grambling State University is a comprehensive, historically-black, public institution that offers a broad spectrum of undergraduate and graduate programs of study. Through its undergraduate major courses of study, which are undergirded by a traditional liberal arts program, and through its graduate school, which has a decidedly professional focus, the University embraces its founding principle of educational opportunity. With a commitment to the education of minorities in American society, the University seeks to reflect in all of its programs the diversity present in the world. The University advances the study and preservation of African American history, art, and culture.
>
> Grambling State University is a community of learners who strive for excellence in their pursuit of knowledge and who seek to contribute to their respective major academic disciplines. The University prepares its graduates to compete and succeed in careers related to its programs of study, to contribute to the advancement of knowledge, and to lead productive lives as informed citizens in a democratic society. The University provides its students a living and learning environment which nurtures their development for leadership in academics, athletics, campus governance, and in their future pursuits. The University affords each student the opportunity to pursue any program of study provided that the student makes reasonable progress and demonstrates that progress in standard ways. Grambling fosters in its students a commitment to service and to the improvement in the quality of life for all persons.
>
> The University expects that all persons who matriculate and who are employed at Grambling will reflect through their study and work that the University is indeed a place where all persons are valued, "where everybody is somebody."

Department of Mathematics and Computer Science

The mission of the Department of Mathematics and Computer Science is to provide highly rewarding educational experiences to intellectually capable and highly motivated students. The Mathematics and Computer Science Department maintains its tradition of commitment to nurture students intellectually, ethically, and socially, so that they can reach their full potential. Programs are designed to meet the educational, cultural, and social needs of a multi-cultural clientele that is primarily statewide and secondarily, national and international. Through a purposeful and creative program design, we are making learning a stimulating, enjoyable, and worthwhile experience to our students that lasts a lifetime.

B. Program Educational Objectives

List the program educational objectives and state where these can be found by the general public.

The Mathematics and Computer Science Department maintains its tradition of commitment to nurture students intellectually, ethically, and socially, so that they might reach their full potential. The academic programs are designed to meet the educational, cultural, and social needs of a diverse clientele that is primarily statewide and secondarily, national and international. The CS program also provides highly rewarding educational experiences to intellectually capable and highly motivated students. Students are encouraged to participate in academic and enrichment activities that build on a curriculum of strengthening knowledge in the field of computer science and life-long learning. The program educational objectives listed below are similar to 2005 Educational objectives.

P1. Be prepared to pursue a career in any computer related field.
P2. Be prepared to pursue graduate studies in computer science and related areas.
P3. Embrace an understanding of the need for life–long learning and the need to continue professional development in the use of technology.
P4. Communicate effectively with their peers, customers, supervisors using both written and oral communication.
P5. Understand how to make rational decisions when faced with social, ethical, and legal issues inherent to the computing field.

Table 2.1 Correlates 2005 Educational Objectives to Current Program Educational Objectives

2005 Educational Objective / 2010 Program Educational Objective	S1. Analyze, design, document and implement a computerized solution to a real world problem with emphasis as a team member	S2. Make oral presentations of special assigned projects or applications	S3. Pursue graduate studies in computer science and related areas	S4. Pursue life-long learning and continued professional development	S5. Be sensitive to ethical issues and social concerns relation to use of computers in society
P1. Be prepared to pursue a career in any computer related field	X	X		X	X
P2. Be prepared to pursue graduate studies in computer science and related areas			X		
P3. Embrace an understanding of the need for life–long learning and the need to				X	

continue professional development in the use of technology					
P4. Communicate with their peers, customers, supervisors through both written and oral communication		X			
P5. Understand how to make rational decisions when faced with social, ethical, and legal issues inherent to the computing field					X

C. Consistency of the Program Educational Objectives with the Mission of the Institution

Describe how the program educational objectives are consistent with the mission of the institution.

As stated above, Grambling State University has a commitment to educate minorities and prepares its graduates to successful careers by promoting the pursuit of excellence, so that they can contribute to the advancement of knowledge, and lead productive lives as informed citizens in a democratic society. In addition, Grambling State University fosters in its students a commitment to service and to the improvement in the quality of life for all persons. In support of this mission, the Department of Mathematics and Computer Science focuses on nurturing students intellectually, ethically and socially, so that they can reach their full potential. Furthermore, the Department strives to make learning an experience that lasts a lifetime.

The Program Educational Objectives for the Computer Science Program support the missions of both the institution and the department. The Computer Science Program embraces the university and the department missions by giving its graduates not only the technical foundations to apply skills in the use of technology, the program builds communication skills and also prepares them for the social, ethical and legal issues that they may encounter in their future careers. Thus, the program helps to create a diverse and productive community of computer professionals with an understanding of social awareness.

D. Program Constituencies

List the program constituencies. Describe how the program educational objectives meet the needs of these constituencies.

The principal constituencies of the Computer Science Program are listed below. Each is along with narrative explaining how the Computer Science Program Educational Objectives meet their needs:

- Current Students: Students who are CS majors are one of the most important constituencies in the Computer Science Program. They are among a multicultural student body that is primarily statewide and secondarily, national and international. They seek to gain knowledge and develop skills in their chosen profession as they learn to communicate within a diverse environment.

- Computer Science Faculty: The Computer Science faculty is also a principal constituency of the Computer Science Program. They work aggressively with freshmen level students helping them to develop into productive, responsible professionals.

- Advisory Committee: The Computer Science Program is comprised of alumni, computing professionals from industry, and academia. The advisory members provide feedback and guidance on routine issues of the profession as well as updated challenges in the real world. This interaction connects the program with realistic expectations in the profession.

- Alumni: Alumni of the Computer Science Program at GSU strongly support the CS Program, helping the program maintain or even advance the standards that were used for their education. Their goal is primarily to network with a community of valuable professionals.

- Potential Employers: Potential employers at-large are a principal constituency of the Computer Science Program. They include not only national and regional employers, but also various industries or governmental agencies. They seek knowledgeable graduates that can mature into productive, responsible computer professionals. Examples of recent employers include IBM, Microsoft, Motorola, General Motors, Wall Mart, State Farm, Raytheon, and Chevron-Texaco.

- Graduate Schools: Graduate schools are another principal constituency of the Computer Science Program. Graduate Schools seek to recruit high-potential students that not only master the foundations of Computer Science, but can also apply these principles to real-world problems and can communicate efficiently.

E. Process for Revision of the Program Educational Objectives

Describe the process that periodically reviews and revises, as necessary, the program educational objectives including how the program's various constituencies are involved in this process. Include the results of this process and provide a description of any changes that were made to the program educational objectives and the timeline associated with those changes since the last general review.

Historically, the undergraduate program uses formal and informal discussions with its

students, alumni and peers in the professional network (advisory board and industry) as a stimulus for considering changes to the curriculum. These changes are also related to changes in scope of the program. The program educational objectives as well as changes in content (e.g., textbook adoptions, new courses) and course inventory (add or remove a course) are considered by the departmental curriculum committee. The primary purpose of this committee is to review recommendations to make changes to the curriculum and to implement the academic process for curriculum changes, if needed. The procedure used for changes is as follows: changes in the program suggestions from the faculty are submitted to the curriculum committee and are discussed at length. If the departmental curriculum committee deems that a change is warranted, a proposal is developed and presented to the department head. The department head submits the proposal to the college curriculum committee, before approval of the dean is requested. Once the dean of the college approves the proposal it is submitted to the university curriculum committee for final approval.

The latest revisions to the Program Educational Objectives (PEO) were motivated by the need to modify the 2005 "Program Objectives" which were reviewed after a five-year cycle. The revisions were motivated by the need to establish formal program educational objectives using program objectives from the last five year cycle. Also, the PEO's are better aligned with the changes made in ABET terminology and recent curriculum changes. In addition, feedback from the aforementioned constituents was considered. Faculty members were involved in the revision and refinement of the Program Educational Objectives through discussion at faculty meetings, suggestions from recruiters, student representatives and Alumni.

CRITERION 3. STUDENT OUTCOMES

A. Student Outcomes

List the student outcomes for the program and indicate where they are documented.

The Computer Science faculty has identified ten (10) student outcomes for the program. These outcomes are published on the university website and posted in locations throughout the department. By the time of graduation, our students will be able to:

S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices
S2. analyze a problem and identify and define the computing requirements appropriate to its solution
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
S4. apply design and development principles in the construction of software systems of varying complexity
S5. effectively work on a group/individual project
S6. understand professional, ethical, legal, security, and social issues and responsibilities
S7. communicate effectively with a range of audiences
S8. analyze the local and global impact of computing on individuals, organizations, and society
S9. recognize the need for and engage in continuing professional development
S10. use current techniques, skills, and tools necessary for computing practice

B. Relationship of Student Outcomes to Program Educational Objectives

Describe how the student outcomes prepare graduates to attain the program educational objectives.

The ten program outcomes listed above are closely tied to the five program educational objectives. The table below shows how a program outcome is aligned to a specific program educational objective.

Table 3-1

Relationship of Student Outcomes (S1 – S10) to Program Educational Objectives

	P1. Be prepared to pursue a career in any computer related field	P2. Be prepared to pursue graduate studies in computer science and related areas	P3. Embrace an understanding in of the need for life-long learning and the need to continue professional development in the use of technology	P4. Communicate with their peers, customers, supervisors through both written and oral communication	P5. Understan how to make rational decisions when faced with social, ethical, and legal issues inherent to the computing field
S1. Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choice	X	X	X		
S2. Analyze a problem, and identify and define the computing requirements appropriate to its solution	X	X			
S3. Design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs	X	X			
S4. Apply design and development principles in the construction of software systems of vary complexity	X	X			
S5. Effectively work on a group/individual project	X	X		X	
S6. Understand professional, ethical, legal, security, and social issues and responsibilities	X	X			X
S7. Communicate effectively with a range of audiences	X	X		X	
S8. Analyze the local and global impact of computing on individuals, organizations, and society	X	X			X
S9. Recognize the need for and engage in continuing professional development	X	X	X		
S10. Use current techniques, skills, and tools necessary for computing practice	X	X	X	X	

The table below shows how our student outcomes (S1–S10) are aligned with ABET's characteristics a – i characteristics.

Table 3-2 Relationship of Student Outcomes (S1–S10) to ABET Characteristics

	ABET characteristics								
	a	b	c	d	e	f	g	h	i
S1 apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choice	≈								
S2 analyze a problem, and identify and define the computing requirements appropriate to its solution		=							
S3 design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs			=						
S4 apply design and development principles in the construction of software systems of varying complexity									
S5 effectively work on a group/individual project				≈					
S6 understand professional, ethical, legal, security, and social issues and responsibilities					=				
S7 communicate effectively with a range of audiences						=			
S8 analyze the local and global impact of computing on individuals, organizations, and society							=		
S9 recognize the need for and engage in continuing professional development								=	
S10 use current techniques, skills, and tools necessary for computing practice									=

C. Process for the Establishment and Revision of the Student Outcomes

- **Process for Establishing and Revising Program Outcomes**

  CS program outcomes were reviewed recently and revised based on input/feedback from our constituencies. The review and revision process includes extensive dialog with these constituencies. Examples of these dialogs are highlighted below.

  Students- Computer Science students provide constant feedback to the department in a number of forms. Students meet with their advisors regularly to discuss their performance and progress. Students have opportunities to ask questions and/or raise concerns about program outcomes. Annually, each computer science major has the opportunity to evaluate how well the program is meeting program outcomes. This is done in the form of a survey. Student Organizations, such as the Association of Computing Machinery and the Mathematics and Computer Science club provide continuous feedback to the CS program.

  Faculty-Departmental faculty meetings are held regularly to discuss various issues including program outcomes.

  Graduates- Our graduates complete an alumni survey that is aligned with the program outcomes. This survey is sent to the graduate after 1 year and 3 years.

  Employer- The employers of our graduates are surveyed in an effort to determine how well they think the program prepared the graduate.

  Industrial Advisory Board-An attempt is made to engage the industrial advisory board annually. Issues related to program educational objectives and program outcomes are discussed. The Board provides valuable input that is used to make sure the program remains current and prepares our graduates for success.

  Annually the university requires all programs to engage in a planning process that requires having an assessment plan. In this plan goals/objectives are identified for the unit along with ways (performance measures) to identify how the objectives will be measures. During this planning period the computer science program uses the input provided by stakeholders to revise program objectives.

D. Enabled Student Characteristics

For any of the characteristics a) through i) as well as any program specific characteristics that are not addressed by the student outcomes, indicate how the curriculum enables these student characteristics.

CRITERION 4. CONTINUOUS IMPROVEMENT

This section of your self-study report should document your processes for regularly assessing and evaluating the extent to which the program educational objectives and student outcomes are being attained. This section should also document the extent to which the program educational objectives and student outcomes are being attained. It should also describe how the results of these processes are being utilized to effect continuous improvement of the program.

Assessment is defined as one or more processes that identify, collect, and prepare the data necessary for evaluation. Evaluation is defined as one or more processes for interpreting the data acquired though the assessment processes in order to determine how well the program educational objectives and student outcomes are being attained.

Although the program can report its processes as it chooses, the following is presented as a guide to help you organize your self-study report. It is also recommended that you report the information concerning your program educational objectives separately from the information concerning your student outcomes.

A. Program Educational Objectives

It is recommended that this section include (a table may be used to present this information):

1. A listing and description of the assessment processes used to gather the data upon which the evaluation of each the program educational objective is based. Examples of data collection processes may include, but are not limited to, employer surveys, graduate surveys, focus groups, industrial advisory committee meetings, or other processes that are relevant and appropriate to the program.
2. The frequency with which these assessment processes are carried out
3. The expected level of attainment for each of the program educational objectives
4. Summaries of the results of the evaluation processes and an analysis illustrating the extent to which each of the program educational objectives is being attained
5. How the results are documented and maintained

Program educational objectives are assessed primarily using four methods. These methods included Graduating Seniors Exit Surveys, Alumni Surveys, Employers of Alumni Surveys, and Recruiters. The frequencies of these evaluations are highlighted below.

Assessment	Frequency
Graduating Seniors Exit Survey	At the end of each semester
Alumni & employers of alumni	After year 1, 3, 5 (after graduation)
Recruiters	Annually

Listed below is a table that highlights how educational objectives are assessed, the frequency of the assessment, the expected level of attainment, and a summary of the most recent evaluation. Also included is how the results are documented and maintained.

Processes for assessing and evaluating Program Educational Objectives for the 2006 - 2011 cycle					
Program Educational Objectives	Description of assessment process	Frequency of collection	Expected level of attainment	Summary of results	How results documented and maintained
P1. Pursue a productive career in any computer related field	• Program Objectives Survey from Alumni (This survey records to which extent a respondent believes that CS program at GSU prepared him/her to obtain each PEO) • Employers' survey • Informal discussions with recruiters • Informal discussions with Alumni visiting the department • LinkedIn connections	After 1, 3, 5 years (after graduating) Each semester	• 80% of graduates	• 2010/2011 survey results- 96.6% of respondents met this objective- Most of the graduates are working in a Computer related field	A separate folder is maintained at a central location (surveys and results of evaluation)
P2. Pursue graduate studies in computer science and related areas	• Program Objectives Survey from Alumni • Employers' survey • Informal discussions with recruiters • Informal discussions with Alumni visiting the department • LinkedIn	After 1, 3, 5 years (after graduating) Each semester	80%	• 2010/2011 survey results 96% of respondents are pursing graduate studies- graduates attended graduate school directly or through work	A separate folder is maintained at a central location (surveys and results of evaluation)

	connections • Exit Surveys				
P3. Adapt to technology advances by embracing life-long learning and continued professional development	• Program Objectives Survey from Alumni • Employers' survey • Informal discussions with recruiters • Informal discussions with Alumni visiting the department	After 1, 3, 5 years (after graduation)	80%	• 2010/2011 survey 96.6% of respondents felt that graduates were able to adapt to technological advances via life-long learning.	A separate folder is maintained at a central location (surveys and results of evaluation)
P4. Effectively communicate with their peers, customers, supervisors through both written and oral means	• Program Objectives Survey from Alumni • Employers' survey • Informal discussions with recruiters • Informal discussions with Alumni visiting the department	After 1, 3, 5 years (after graduation) Each semester	80%	• 2010/2011 survey 96.6% of respondents felt graduates were able to communicate effectively. Alumni present their work at conferences/ Symposiums /work meetings	A separate folder is maintained at a central location (surveys and results of evaluation)
P5. Make well-rounded decisions when faced with social, ethical, and legal issues inherent to the computing field	• Program Objectives Survey from Alumni • Employers' survey • Informal discussions with recruiters • Informal discussions with Alumni visiting the department	After 1, 3, 5 years (after graduation) Each semester	80%	• 2010/2011 survey- 86.6% of respondents felt that they made well rounded ethical decisions	A separate folder is maintained at a central location (surveys and results of evaluation)

B. Student Outcomes

Table 4.3 Processes of assessing and evaluating student outcomes					
Student Outcomes	Description of assessment process	Frequency of collection	Expected level of attainment	Summary of results	How results documented and maintained
S1: apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choice	• Student Outcomes Survey from Graduating Seniors • Direct Assessment results from class assignments, projects, and exam questions of: CS 310, CS 360, CS 405	Once an academic year	• 80% attainment from Survey results • 75% of students should have C or above in the selected projects and/or exam questions	• 2010/2011 survey results 100% of respondents indicated they could apply mathematical foundations ……. • CS 310 Fall 2009 -50% of students received grade C or better on capstone project- In response to this faculty placed more emphasis on the project including providing a detailed timeline that had to be followed. • CS 310 Fall 2010 project: 100% of students received grade C or above: The goal achieved	A separate folder is maintained at a central location (surveys and results of evaluation as well as results from direct assessment)
S2: analyze a problem, and identify and define the computing	• Student Outcomes Survey from Graduating	Once an academic year	• 80% attainment level for survey results	• 2010/2011 survey results 80% attainment	A separate folder is maintained at a central

requirements appropriate to its solution	Seniors • Direct Assessment results from class assignments, projects, and exam questions of: • CS 310, CS 405		75% of students should have C or above in the selected projects and/or exam questions	***In an effort to enhance the ability of computer science majors to analyze and solve problems using programming skills adjustments will be made to specific courses beginning Fall 2011*** • CS 405 spring 2010 capstone project: 66% of students received grade C or better; Needs Improvement • CS 405spring 2011capstone project: 100% of students received grade C or above	location (surveys and results of evaluation as well as results from direct assessment)
S3: design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs S4: apply design and development principles in the construction of software systems of	• Student Outcomes Survey from Graduating Seniors • Direct Assessment results from class assignments, projects, and exam questions of: • CS 310, CS 405	Once an academic year	• 80% attainment from survey results • 75% of students should have C or above in the selected projects and/or exam questions	• 2010/2011 survey results 91.4% attainment for S3 and 98.4% attainment for S4 • CS 405 spring 2010 capstone project: 66% of students received grade C or	A separate folder is maintained at a central location (surveys and results of evaluation as well as results from direct assessment)

varying complexity				better; Needed Improvement • CS 405spring 2011capstone project: 100% of students received grade C or above	
S5: effectively work on a group/individual project	• Student Outcomes Survey from Graduating Seniors • Direct Assessment results from class assignments, projects, and exam questions of: • CS 310, CS 405	Once an academic year	• 80% expected attainment • 75% of students should have C or above in the selected projects and/or exam questions	• 2010/2011 survey results 94.2% attainment • CS 405 spring 2010 capstone project: 66% of students received grade C or better; Needed Improvement • CS 405spring 2011capstone project: 100% of students received grade C or above:	• A separate folder is maintained at a central location (surveys and results of evaluation as well as results from direct assessment)
S6: understand professional, ethical, legal, security, and social issues and responsibilities S8: analyze the local and global impact of computing on individuals, organizations, and society S9: recognize the need for and engage in continuing	• Student Outcomes Survey from Graduating Seniors • Direct Assessment results from presentations, or exam questions of: CS 110, CS 300, CS 310, CS 400, CS 456	Each time the courses are taught	• 80% attainment for each of these outcomes • 75% of students should have C or above in the selected projects and/or exam questions •	• In 2011 survey the rating is 88.6% or S6, 94.2% for S8,and 94.2% for S9 • CS 110 fall 2010 exam question concerning ethics: 79% of students received more than 7 points out of	• A separate folder is maintained at a central location (surveys and results of evaluation as well as results from direct assessment)

professional development				10. • We plan to add a new class (CS 201) on ethical, legal, and social issues of Computing • This class also addresses the local and global impact of computing and the need for continuing professional development	
S7: communicate effectively with a range of audiences	• Student Outcomes Survey from Graduating Seniors • Direct Assessment results from presentations, peer assessment: CS 300 and CS 400	Each time the courses are taught	• 80% attainment for each of these outcomes • 75% of students should have C or above in the presentations	• 2010/2011 survey results of 94.2% for Learning outcome S7 CS 400 spring 2011 received grade C or above	• A separate folder is maintained at a central location (surveys and results of evaluation as well as results from direct assessment)
S10: use current techniques, skills, and tools necessary for computing practice	• Student Outcomes Survey from Graduating Seniors • Direct Assessment results from exam questions, Lab reports, and projects in CS 405, CS 456, CS 459,	Each time the courses are taught	• 80% attainment for S10 learning outcome • 75% of students should have C or above in the selected exam questions, Lab reports and projects	• 2010/2011 survey results for S10 – 91.4% • CS 456 spring 2010 received 100% grade C or above.	• A separate folder is maintained at a central location (surveys and results of evaluation as well as results from direct assessment)

Figure 4.2 illustrates the results of student outcomes survey from the graduating seniors.

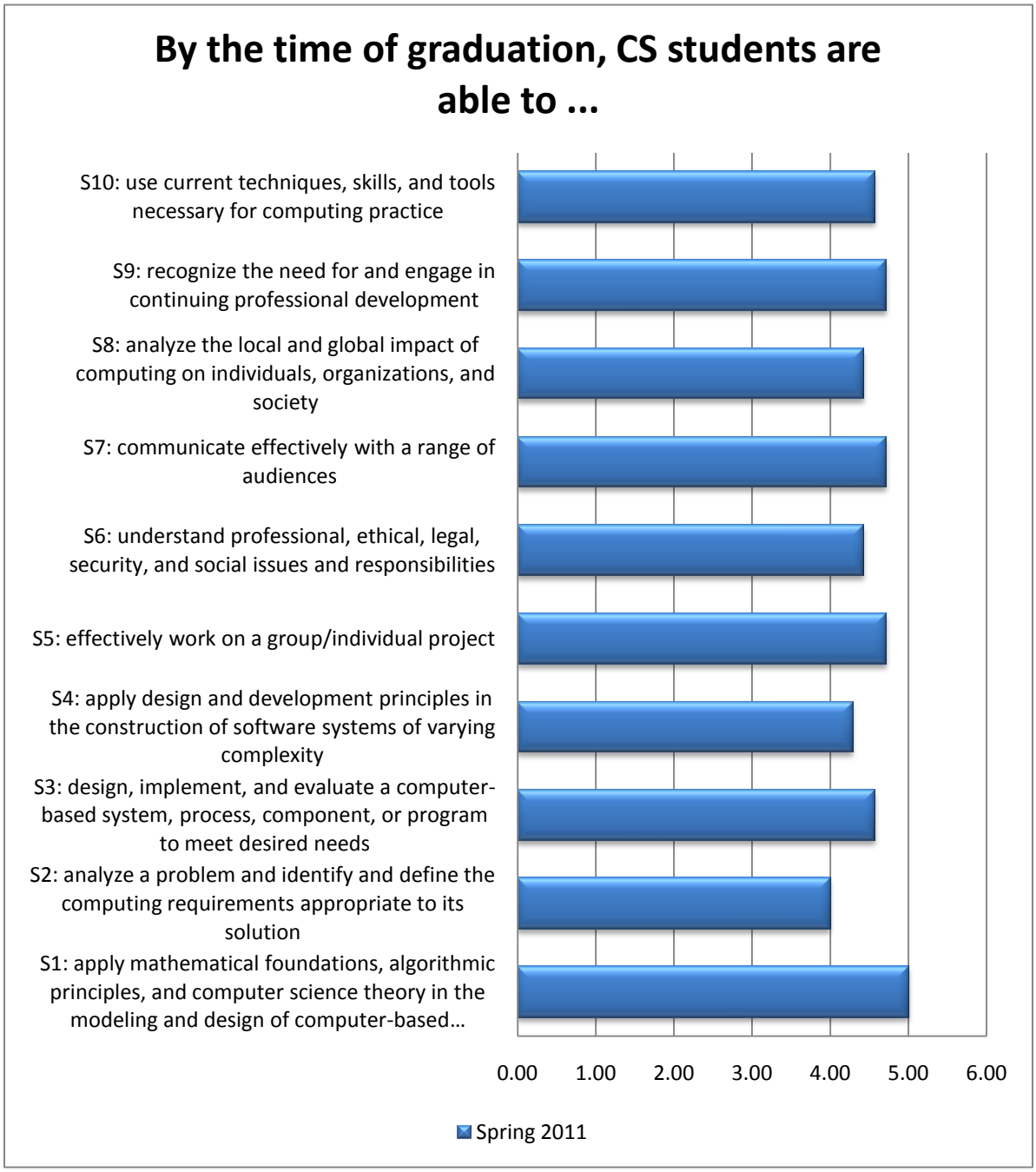


Figure 4.2: Results of the Student outcome survey

1= 20%, 2 = 40%, 3= 60% 4= 80% and 5 = 100%

Assessment Data Collection Instruments

Assessment can either be formal or informal. Many of the improvements made to the program are a result of data from informal assessments. We have five full-time faculty members who teach computer science courses. The students, in general, are well prepared so that they can be successful in the next required course. With our close faculty/student relationship, we obtain much valuable feedback from our students both inside and outside of class.

Informal

Several computer science courses such as Software Engineering (CS 310), Database Management (CS 320), Software Development (CS 405), Advanced Programming Techniques (CS 424), Compiling Techniques (CS 431), and Computer Graphics (CS 428) require each student to take a "real world" problem, analyze it, design and implement a solution, plan the testing strategy and write the project report. In addition, the students make oral presentations at the completion of the project. The instructor evaluates the written documentation and the oral presentation. The class instructor and the students provide the constructive criticism and suggestions. Based on feedback these courses have been modified to include more documentation and effective oral presentation.

The courses CO-OP Experience I (CS 371), CO-OP Experience II (CS 372), CO-OP Experience III (CS 471), and CO-OP Experience IV (CS 472) for CO-OP/internship credit may involve an outside software development opportunity. In this case, the student has a mentor from the respective industry and a departmental advisor. The mentor, a professional in the software development community, provides valuable assessment of the preparation of the student for the project. The courses CS Seminar I (CS 300), Programming Language Concepts (CS 336), CS Seminar II (CS 400), and CS 400 level electives include written project reports and oral presentations. We developed a capstone experience, CS 405, as a requirement for graduation. This course requires a student to complete a project design that focuses on a real life problem. This course is taken by the students during the semester of their graduation.

While we consider informal assessment to be our major method of assessment, we also do formal assessment.

Formal

The major assessment tools that we use are: Senior Exit Surveys, Placement Information, Alumni Surveys and the Departmental Annual Report. In addition, the university requires periodic Program Reviews.

FORMAL ASSESSMENTS

1. The Department conducts Senior Exit Surveys each semester. These surveys gather information about the general activities such as the effectiveness of courses offered, internship experience, undergraduate research experience, and suggestions to improve the program.
2. The Placement Office keeps the record of alumni placement information.
3. The Department periodically conducts surveys of its graduates to see what they are doing after graduation and what they think about their preparation in retrospect.
4. Each year the department is required to prepare an Annual Report which analyzes the various assessment results as stated above, reports the progress on the objectives from the previous year and sets objectives for the following year.
5. Another source of data is information collected regarding students who participate in the internship and co-op programs. Upon completion of their programs, an evaluation of the student by his/her supervisor is submitted to the department. The Assessment Committee evaluates the student's performance based on the supervisor's report submitted to the department.

Computer Science Course Survey of revised student outcomes

Question#	Survey Question: **CS 300 - 400 (Fall 2010)**						
		Excellent (%)	**Very Good (%)**	**Satisfactory (%)**	**Fair (%)**	**Not Known (%)**	**Not Applicable (%)**
#1	How well does this course prepare you to identify, formulate, and solve problems using computer science skills?	14.00	27.00	11.00	4.00	3.00	3.00
#2	How well does this course prepare you to analyze and design applications to complete class projects using the complete software development cycle?	19.00	17.00	14.00	5.00	1.00	6.00
#3	How well does this course prepare you to work on team projects with team members from other majors?	14.00	20.00	10.00	8.00	6.00	4.00
#4	How well does this course prepare you to develop and document technical procedures?	12.00	21.00	16.00	7.00	5.00	1.00
#5	How well does this course provide you with preparation for effective oral and written communication skills?	15.00	22.00	15.00	6.00	3.00	1.00
#6	How well does this course provide you with sufficient experiences to increase your skill in using Power Point?	15.00	11.00	22.00	4.00	2.00	8.00
#7	How well does this course increase your ability to give descriptive/comparative technical audio-visual presentations.	15.00	15.00	16.00	8.00	4.00	4.00
#8	How well does this course increase your understanding of professional and ethical responsibilitilty?	11.00	23.00	19.00	4.00	3.00	2.00

#9	How well does this course increase your understanding of ethical codes of progessinal computer societies?	7.00	18.00	25.00	5.00	3.00	4.00
#10	Are you a student member of one or more computing societies such as ACM, IEEE-CS?	39.00	21.00	2			
#11	Have you attended any ACM, IEEE-CS or other computer related professional meetings this semester?	12.00	47.00	3			
#12	Have you read computer science periodicals/journals this semester as part of course assignments?	21.00	38.00	3			
#13	Was this class intellectually stimulating? .	53.00	3.00	6			

Figure 4.2 illustrates the results of student outcomes survey from the graduating seniors.

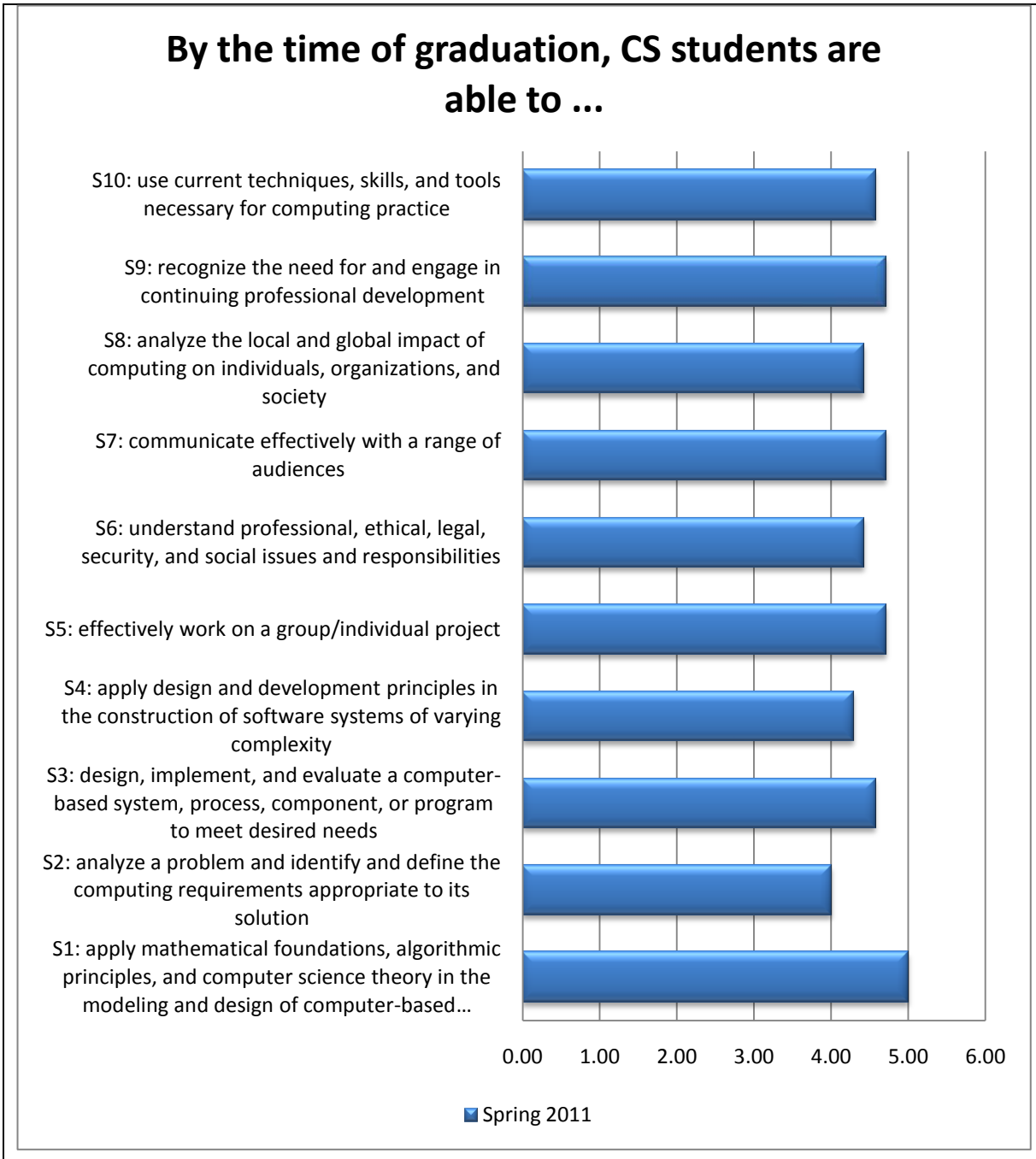


Figure 4.2: Results of the Student outcome survey

1= 20% 2= 40% 3= 60% 4= 80% 5= 100%

C. Continuous Improvement

Describe how the results of evaluation processes for the program educational objectives and the student outcomes and any other available information have been used as input in the continuous improvement of the program. Indicate any significant future program improvement plans based upon recent evaluations. Provide a brief rationale for each of these planned changes.

We have used the results of evaluation processes for the program educational objectives and student outcomes to improve the CS program:

- Assessment results show that survey results for graduates related to ethics is below the 80%. This prompted the faculty to change the ethics class requirement from a course in political science/public administration to a science course that focuses on ethics.
- During the Fall 2010 semester our introductory classes (CS 110 and CS 120) were restructured to promote student success. This was done in direct response to data that shows that over a five year period the retention rate of freshman computer science majors from the freshman to sophomore year is only 27.3%. The faculty determined that one factor that contributes to the low retention is the lack of programming skills of many of our freshman students. To increase the programming skills the faculty now include incremental in difficulty mini projects into program assignments.
- To meet industry requirements for 21st century requirements a set of new electives have been proposed: Modeling and Simulations, High Performance Computing (Parallel Processing), Distributed Databases, Machine Learning, Computer and Network Security, Mobile Computing. These courses will be developed during the 2011/2012 academic year
- In an effort to keep up with advances that made in the computing area- The core CS course contents will be modified according to 2008 ACM/IEEE Computer Society recommendations- beginning fall 2011.

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DESCRIPTION OF THE ASSESSMENT PROCESS

The Computer Science faculty at Grambling State University revised and formalized its processes for revising, assessing and evaluating Program Educational Objectives and Student Outcomes. The process is described in detail below

PEO Assessment sub-process

The instruments described below are designed to assess the attainment of each PEO:

- *The Program Objectives Survey*: In addition to determining the current occupation of the alumni (industry position or graduate studies), the survey records to what extent an alumnus believes that the CS program at Grambling state University prepared him to attain each PEO. The instrument is provided in appendix F.
- *The employer's survey*: The survey was sent to alumni to forward to their manager so that the managers fill the survey and mail them back (Appendix F). Feedback from employers is not very good. During the 2010/2011 academic year only three replies were received.

Currently, surveys are emailed, as Word document attachments. We plan to increase the response rate by proposing web-based surveys to alumni and graduate schools starting in fall 2012. A secure link will be emailed or communicated through Facebook or LinkedIn websites to alumni and graduate schools. After the surveys are collected, means of the level of attainment of each PEO can be estimated. These scores, along with a compiled set of suggestions for improvement, constitute the PEO Assessment Data. The PEO Assessment Data will be reviewed during the PEO Evaluation sub-process.

PEO Evaluation sub-process

For each PEO, the average scores are compared with an expected score for this PEO. If a PEO does not reach it's expected score, then the Student Outcomes (SO) that support this PEO may be marked for review, which in turn may trigger a revision of the corresponding strategy implemented by the curriculum and supporting practices. Alternatively, a PEO is revised by the faculty. The suggestions/remarks collected are also used in the evaluation. The interpretation of the PEO Assessment Data and the results of the evaluation must be summarized in a PEO Evaluation Report which is found in a central location.

For example, after the spring 2011 evaluation, we found that P5 had a low score, so we decided to introduce a new class on ethics (CS 201).

SO Assessment sub-process

Both direct and indirect assessments are used to measure the attainment of each SO. Indirect assessments include:

- *The Student Outcomes Survey* - designed to be conducted every semester, with graduating seniors. Students are asked to assess how the program prepares them to attain each SO. The survey also includes open questions, asking for suggestions for improvement (Appendix F). After the surveys are collected, the means of the level of attainment for each SO are estimated. These means along with a compiled set of suggestions for improvement constitute the SO Indirect Assessment Data.

  Each SO is also assessed through direct measurements such as instructor's observations,

students' projects, presentations, examination questions, and peer evaluations. We described in the previous section how SO Direct Assessment Data has been collected.
The indirect and direct assessment data of SOs constitute the 'SO Assessment Data' that will be reviewed during the SO Evaluation sub-process.

SO Evaluation sub-process

The SO Assessment Data are reviewed during the SO Evaluation sub-process. Each SOs score must be compared with an expected score. When the attainment level is not reached the faculty identify strategies to implement that will increase student preparedness.

The Holistic Process

Figure 4.3 illustrates the holistic process for our program assessment.

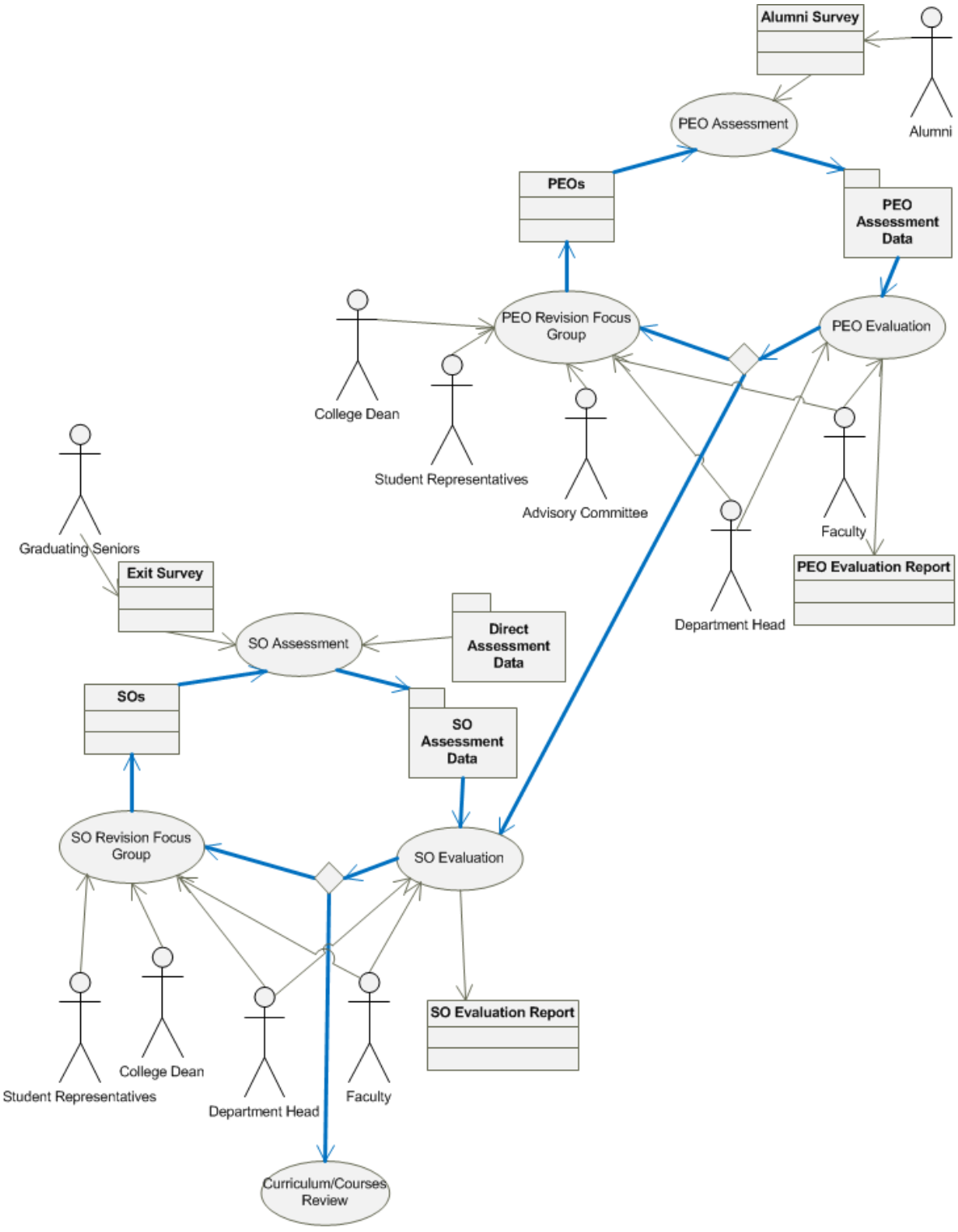

Figure 4.3: diagram of the holistic assessment process

The entire assessment process is also reviewed when our program prepares for ABET accreditation, every 6- year period. The feedback from the ABET visiting group are used to improve the program.

Table 4.4 describes the time-line for CS program assessment process.

Table 4.4: Timeline for continuous improvement of PEOs and SOs

Time	Action	Person responsible
End of Spring semester	Course assessment data from the Spring Semester are compiled and saved for next SO Evaluation	Dr. Brenda Miles
	Every 5 years, PEO Evaluation Report is prepared from data from 5 past years	Dr. Nelly Gassant
	PEO Revision is organized if needed	Department Head
	Every 2 years, SO Evaluation Report is prepared from data from 2 previous years	Dr. Nelly Gassant
	SO Revision is organized if needed	Department Head
	Curriculum/Course Review if needed	Department Head
	Alumni/Employers/ Graduating Senior/ Co-op Employers surveys are prepared and sent out	Dr. Yenumula B Reddy
	Course assessment instruments for the following Fall Semester are prepared and distributed to the appropriate instructors	Dr. Nelly Gassant Dr. Yenumula B Reddy
Fall semester	Data from Alumni/Employers surveys are compiled and saved for next PEO evaluation	Dr. Brenda Miles
	Data from Graduating Senior/ Co-op Employers surveys are compiled and saved for next End of Spring SO evaluation	Dr. Yenumula B Reddy
	Course assessments are conducted for those student outcomes that are selected for that semester	Appropriate Instructor
End of Fall Semester	Course assessment data from the Fall Semester are compiled and saved for next SO Evaluation	Dr. Brenda Miles Dr. Nelly Gassant
	Course assessment instruments for the following Spring Semester are prepared and distributed to the appropriate instructors	Dr. Nelly Gassant Dr. Yenumula B Reddy
Spring Semester	Course assessments are conducted for those student outcomes that are selected for that semester	Appropriate Instructor

C. Additional Information

Copies of any of the assessment instruments or materials referenced in 4.A, 4.B, or 4.C must be available for review at the time of the visit. Other information such as minutes from meetings where the assessment results were evaluated and where recommendations for action were made could also be included.

Assessment results and minutes will be available at the time of site visit

able at the time of the site visit.

CRITERION 5. CURRICULUM

A. Program Curriculum

1. *Complete Table 5-1 that describes the plan of study for students in this program including information on course offerings in the form of a recommended schedule by year and term along with average section enrollments for all courses in the program over the two years immediately preceding the visit. State whether you are on quarters or semesters and complete a separate table for each option in the program.*
2. *Describe how the curriculum aligns with the program educational objectives.*
3. *Describe how the curriculum and its associated prerequisite structure support the attainment of the student outcomes.*
4. *Attach a flowchart or worksheet that illustrates the prerequisite structure of the program's required courses.*
5. *For each curricular area specifically addressed by either the general criteria or the applicable program criteria as shown in Table 5-1, describe how your program meets the specific requirements for this program area in terms of hours and depth of study.*
6. *If your program has a capstone or other culminating experience for students specifically addressed by either the general or program criteria, describe how this experience helps students attain the student outcomes.*
7. *If your program allows cooperative education to satisfy curricular requirements specifically addressed by either the general or program criteria, describe the academic component of this experience and how it is evaluated by the faculty.*
8. *Describe by example how the evaluation team will be able to relate the display materials, i.e. course syllabi, textbooks, sample student work, etc., to each student outcome. (See the 2011-2012 APPM section II.G.6.b.(2) regarding display materials.)*

The Bachelor of Science in Computer Science was established in 1970. The program continues to provide students with a firm training in computational and logical reasoning skills that enable them to perform effectively in professional careers in computer related fields. The Bachelor of Science degree is awarded to candidates who complete the 125 hour program outlined below in the (general) degree option. The program does not offer certifications, other options, or other concentrations at this time. Candidates must check with their academic advisor for updated curriculum changes required by the state or department in alignment with accreditation or national bodies of accreditation affiliation (ACM, IEEE) to meet curriculum standards.

All the courses taken by the student are categorized according to the three areas of the educational program: 1) general education; 2) cognitive science and mathematics; 3) computer science (major) courses. The program requires the completion of 44 credits of general education, 35 cognitive science and mathematics, and 46 credits of computer science core and elective courses. The program provides a broad based education that prepares students for the computer science profession and to enter graduate studies in computer science or a computer science related field. Some of the advanced level courses offer a varied set of content topics that require an understanding of object oriented programming concepts, and develops the basics of concepts in algorithmic complexity, coding, and gaming. An undergraduate thesis course is not offered, however, students must complete the capstone experience before becoming a degree candidate. The degree program is based on an academic semester term, as most courses are two sequence

course offering. Students have the option of completing some general education courses and cognitive course requirements during summer school. The following is a list of all the department's courses:

CS 110 – Introduction to Computer Science 3 credit hours
This course introduces history of computers, basics of hardware/software, algorithmic problem solving, and programming techniques. It further introduces the object-oriented programming through Java. It also familiarizes students with the main areas of computer science including social and ethical issues. Students will be familiar with small projects with team effort. Prerequisite: College admission.

CS 120 – Problem solving through object-oriented programming 3 credit hours
This course emphasizes object-oriented program development and the basics of the concept of algorithmic complexity. It covers programming techniques and algorithms including recursion, exception handling, sorting, searching, and file handling. It also covers data structures such as linked lists, stacks, and queues. Students work on mini-projects with team effort as part of the requirements of the course. Prerequisite: A grade of C or better in CS 110.

CS 201: Social, legal, and Ethical issues in Information Age 3 credit hours
This course addresses the legal, ethical, and social issues relevant to information technology and computer professionals. The course stresses the ways in which computers challenge traditional and philosophical concepts. Topics include code of conduct, privacy, intellectual property rights, and proprietary software, security, accountability, liability, the digital divide, hacking, and viruses. Prerequisites: Student must be in sophomore year

CS 210 - Discrete Structures and Algorithms 3 credit hours
This course covers the fundamental mathematical structures needed in the study of computing. Topics include sets, relations, functions, logic, Boolean algebra, combinatorics, trees, graphs, and finite state machines. The course also covers deductive and inductive proof techniques.
Prerequisite: A grade of C or better in CS 110.

CS 235 – Data Structures and Algorithms 3 credit hours
This course builds on object-oriented programming fundamentals and emphasis on algorithms, data structures, and software engineering. Concepts of time and space complexity are emphasized through various algorithms that manipulate internal and external data. Prerequisite: A grade of C or better in CS 210.

CS 305 – Web Design / Coop replaces this course 3 credit hours
This course covers basics of designing and developing a web site. Further, it includes design issues specific to web-based presentations, learn web page layout, effective navigation and delve into the design process. The course also covers pitfalls of using graphics, color and fonts on web pages as well as working with tables and CSS. A grade of C or better in CS 235

CS 310 – Software Engineering
This course covers the principles, methodologies, and tools used in the development of large-scale software systems. Students learn the various models that describe the stages of the lifecycle of large systems. The course emphasizes the technical, organizational, legal, and ethical aspects of software development. Course requires team project using analysis and design. Prerequisites: A grade of C or better in CS 235.

CS 320 – Information Management (IM) Systems 3 credit hours
It course includes the capture, digitization, representation, organization, transformation, and presentation of information; algorithms for efficient and effective access and updating of stored information, data modeling and abstraction, and physical file storage techniques. It also encompasses information security, privacy, integrity, and protection in a shared environment. The student needs to be able to develop conceptual and physical data models, determine what IM methods and techniques are appropriate for a given problem, and be able to select and implement an appropriate IM solution that reflects all suitable constraints, including scalability and usability. A grade of C or better in CS 235.

CS 336 - Programming Language Concepts 3 credit hours
This course provides the students understanding of different styles of programming promoted by different languages. Understanding the variety of programming languages and the design tradeoffs between the different programming paradigms makes it much easier to master new languages quickly. Understanding the pragmatic aspects of programming languages also requires a basic knowledge of programming language translation and runtime features such as storage allocation. A grade of C or better in CS 235.

CS 345 - Operating Systems 3 credit hours
Role and purpose of the operating system, history of operating system development, functionality of a typical operating system, mechanisms to support client-server models, hand-held devices, design issues (efficiency, robustness, flexibility, portability, security, compatibility), and influences of security, networking, multimedia, windows
Prerequisite: A grade of C or better in CS 235.

CS 360 – Social Networks/Coop replaces this course 3 credit hours
This course covers the origins of methods and current status in social network analysis. Recent advances in methods of data collection and analysis make the network paradigm more accessible to empirical researchers now, and these are reviewed. Further, it covers family planning, migration, social epidemiology (e.g. HIV/AIDS) labor force dynamics, organizations and historical demography. CS 235

CS 371 - Coop Experience I 6 credit hours
This course is offered through a cooperative education program with industry and government agencies. Its goal is to offer students opportunities to apply their knowledge in solving real-world problems. Students are also exposed to the corporate culture and develop soft skills in addition to technical skills. Credit for this course cannot be applied towards graduation requirements. Prerequisite(s): Consent of Department Head

CS 372 - Coop Experience II 6 credit hours
This course is offered through a cooperative education program with industry and government agencies. Its goal is to offer students opportunities to apply their knowledge in solving real-world problems. Students are also exposed to corporate culture and develop soft skills in addition to technical skills. Credit for this course cannot be applied towards graduation requirements. Prerequisite(s): Consent of Department Head

CS 400 - Computer Science Seminar II 1 credit hours
This course offers students the opportunity to study topics not covered in regular courses. Students choose, subject to instructor's approval, a topic for research. Students are required to present their findings in written reports and oral presentations.. Prerequisite(s): Any two of CS 310, and CS345.

CS 405 – Software Development (Capstone Course) 3 credit hours
The capstone course is an opportunity for students to demonstrate that they have achieved the goals for learning established by the university and the majoring department. The course is designed to assess cognitive, affective and psychomotor learning and to do so in a student-centered and student-directed manner which requires the command, analysis and synthesis of knowledge and skills. The capstone course described here integrates learning from the courses in the major with the courses from the rest of the academic experience. It requires the application of that learning to a project which serves as an instrument of evaluation. The course fosters interdisciplinary partnerships among university departments and helps cultivate industry alliances and cooperation. Prerequisite: A grade of C or better in CS 310 and CS 320 and student must be senior.

CS 414 - Computer Architecture 3 credit hours
This course covers digital logic and data representation, system architecture, tradeoffs between CPU clock speed, cache size, bus organization, and number of core processors. The course also covers Boolean functions, representation of numeric data, precision and floating point arithmetic, storage requirements, and multiprocessing. A grade of C or better in CS 235.

CS 418 – Net Centric Computing 3 credit hours
This course covers the computer communication network concepts and protocols, multimedia systems, Web standards and technologies, network security, wireless and mobile computing, and distributed systems. A grade of C or better in CS 235.

CS 423 – Intelligent Systems 3 credit hours
This course covers knowledge representation and reasoning mechanisms, problem solving and search algorithms, computer vision, planning and acting, robotics, multi-agent systems, speech recognition, and natural language understanding. A grade of C or better in CS 345.

CS 425 – Human Computer Interaction 3 credit hours
This course importance of product development, design and building GUI Interfaces, web-related technologies, mobile devices, systems for e-commerce, and general concepts and principles applicable to future technologies. Further, student will learn most important methods for designing

usable systems, and apply them. Prerequisite: A grade of C or better in CS 345

CS 428 - Graphics and visual Computing 3 credit hours
This course covers understand and interpret visual information from static images and video sequences. Further, students interact with and control work by manipulating visual images either as direct work objects or as objects representing other objects that are not necessarily visual themselves. Prerequisite: A grade of C or better in CS 235.

CS 430 – Computer and Network Security 3 credit hours
This course covers the fundamental principles of computer and network security. The course addresses security policies, formal models for security systems as well as concrete implementations of those. Emphasis is placed on identifying security threats and appropriate countermeasures in distributed systems, operating systems, databases, networks, and programming languages. Topics include viruses and worms, buffer overflows, cryptographic tools, firewalls, intrusion detection systems and secure protocols. Prerequisites: A grade of C or better in CS 345.

CS 445 - Modeling and Simulation 3 credit hours
This course covers the use of simulation as a tool to predict system behavior. Topics include statistical models, computer-based simulation, simulation languages, simulation packages, and result interpretation. Applications are drawn from diverse areas of science and engineering. Prerequisite: A grade of C or better in CS 345, and CS 274.

CS 450 - Parallel Processing 3 credit hours
This course covers the different architectures of multiprocessor computer systems. Topics include interconnection networks, memory distribution, performance, and scalability. The course also covers the development of parallel algorithms and their portability across different architectures. Prerequisite: A grade of C or better in CS 345, and CS 414.

CS 456 - Special Topics in Comp Science 3 credit hours
Contents of this course vary and are determined by advances in the field of computer science and the interest of the faculty. Prerequisite: A grade of C or better in CS 345, and consent of instructor.

CS 471 - Coop Experience III 6 credit hours
This course is offered through a cooperative education program with industry and government agencies. Its goal is to offer students opportunities to apply their knowledge in solving real-world problems. Students are also exposed to the corporate culture and develop soft skills in addition to technical skills. Credit for this course cannot be applied towards graduation requirements. Prerequisite(s): Consent of Department head.

CS 472 - Coop Experience IV 6 credit hours
This course is offered through a cooperative education program with industry and government agencies. Its goal is to offer students opportunities to apply their knowledge in solving real-world problems. Students are also exposed to the corporate culture and develop soft skills in addition to technical skills. Credit for this course cannot be applied towards graduation requirements. Prerequisite(s): Consent of Department head.

During the preparation of this self study, a survey of the inventory of courses and the frequency with which the students preferred certain elective courses was implemented. The faculty used core curriculum and those courses preferred by the majors to align the assessment data given in criterion four with needed improvements in the curriculum.

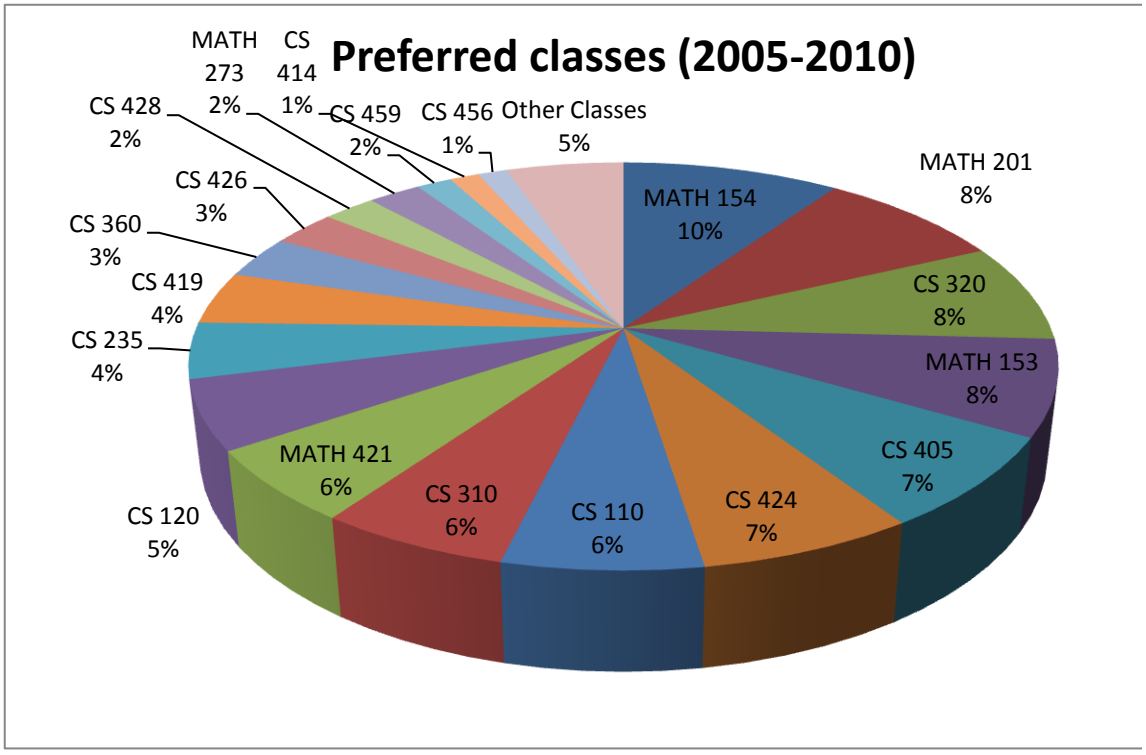

Table 5.2: Cross Reference of CS Required Courses with Student Outcomes (W = weak; S = strong)

Course	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
CS 110	W	S	S	W	W	W		W	W	S
CS 120	S	S	S	S	S	W				S
CS 210	S	W	W	W	S	W				W
CS 225	W	W	W	W	S	W				W
CS 235	S	S	W	W	S	W	W			S
CS 300	W	W	W	W	S	S	S	W	W	W
CS 310	S	S	S	S	S	S	S	W	W	S
CS 320	S	W	S	S	S	W	S	W	W	S
CS 336	W	W	W	W	S	W	W	W	W	S
CS 345	S	W	S	W	S	W	W	W	W	S
CS 360	S	S	W	W	S	W	W	W	W	S

CS 400	W	W	W	W	S	S	S	W	W	W
CS 405	S	S	S	S	S	S	S	W	W	S
CS 414	W	W	W	W	S	W	S	W	W	S
CS 419	W	W	W	W	S	W	S	W	W	S
CS 424	S	S	S	S	S	W				S
CS 426	S	S	S	W	S	W	S	W	W	S
CS 428	S	W	W	W	S	W	W	W	W	S
CS 450	S	W	W	W	S	W	S	W	W	S
CS 456	W	W	W	W	S	S	S	S	W	S
CS 459	S	W	W	W	S	W	S	W	W	S

5.1 illustrates the Computer Science Program pre-requisites tructure.

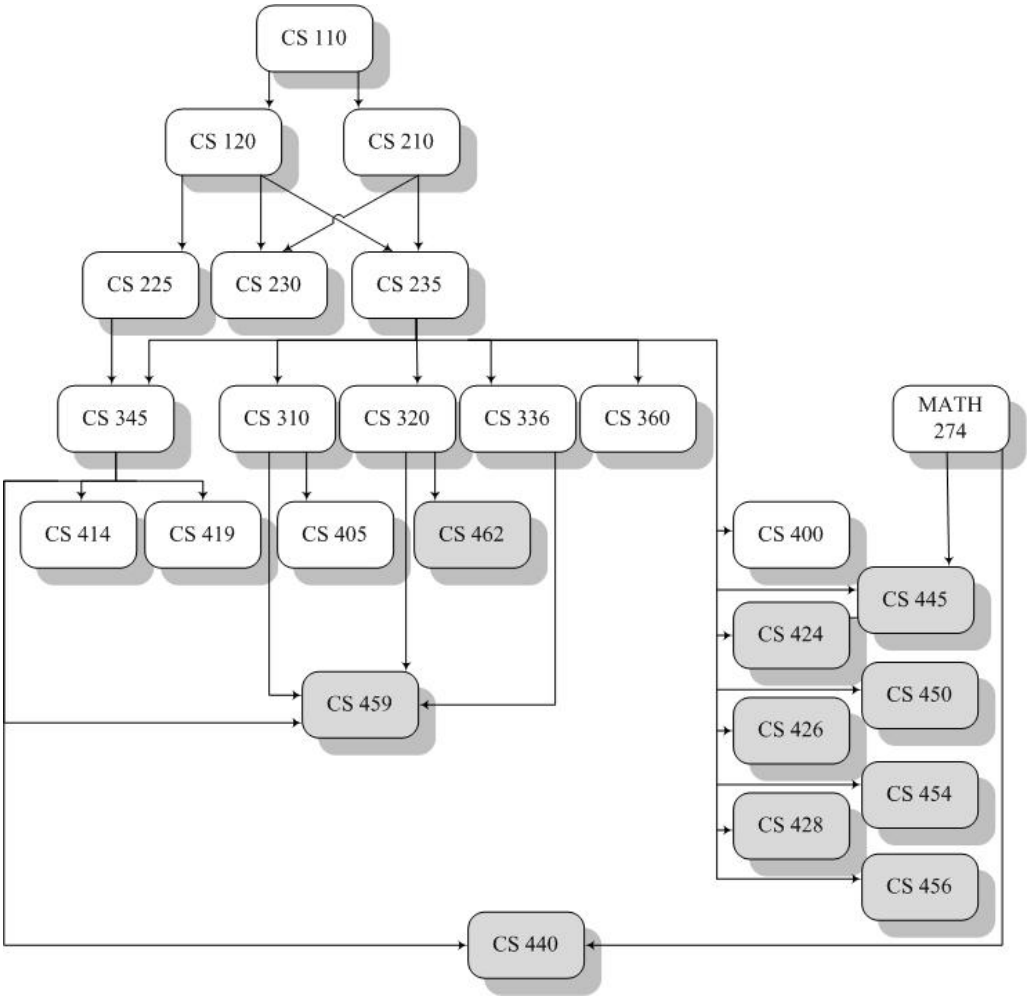

Figure 5.1: Prerequisite Structure of the Program Courses

- **<u>Relationship of Courses in the Curriculum to the Program Outcomes</u>**

  The Computer Science curriculum has the greatest impact on successfully meeting program outcomes. The total hours needed for graduation is 125 which includes he Board of Regents and university requirements. In addition to the computer

science courses, students are required to take courses in science, mathematics, humanities and social science which all support achievement of program educational objectives.

Table 5.1 demonstrates how the curriculum aligns with the program educational objectives:

Table 5.1: Curriculum alignment with program educational objectives

Course	P1	P2	P3	P4	P5
BIOL 113		X			
BIOL 115		X			
FYE 001					X
FYE 002					X
ENG 101				X	
ENG 102				X	
HIST 101				`	
HIST 104					
MATH 153	X	X			
MATH 154	X	X			
CS 110	X	X	X		X
CS 120	X	X	X		
GET 300					
MATH 273	X	X			
ENG 200				X	
ENG 207				X	
PHYS 153		X			
PHYS 153L		X			
ST 212				X	
MATH 201	X	X			
CS 210	X	X			
CS 225	X	X			
PA 201/BIOL 407	X	X			X
CS 235	X	X	X		
PHYS 154		X			
PHYS 154L		X			
SOC 101					X
MATH 309	X	X			
MATH 421	X	X			
MATH 274	X	X			
CS 310	X	X			
CS 320	X	X			
CS 336	X	X			
CS 345	X	X			
CS 360	X	X			
CHEM 101		X			

ART 210					X
ECON 201					X
CS 405	X	X	X	X	
CS 414	X	X	X		
CS 419	X	X	X		
CS 400/CS 300	X	X	X	X	
CS 4xx	X	X			
CS 4xx	X	X			
Foreign language					X
Foreign language					X

5. By the time of graduation, students acquire basic knowledge in one foreign language, social sciences, modern history, arts, economics and reading/writing and public speaking skills. These skills and knowledge acquired by the students constitute GSU's general education requirements and they support the attainment of the Program Educational Objectives.

All science courses in the curriculum include:

- 3-credit hours of lecture (3 scheduled hours per week)
- 1-credit hour laboratory (3 scheduled hours per week)

In addition, they develop an understanding of the scientific method as demonstrated in the syllabi.

The mathematics classes in the curriculum include one semester of discrete mathematics, 9 credit hours of calculus (one extra problem session for each calculus course), one semester of 3 credit hours of numerical methods, one semester of 3 credit hours of linear algebra, and two semesters of 6 credit hours of probability and statistics.

The Computer Science curriculum requires 21 credit hours of fundamental computing topics. In addition, students acquire proficiency in Java in CS 110: Computer Science I, CS 120: Computer Science II object oriented language and coding, CS 235: Data Structures, data structures and algorithms; in programming languages (Python in CS 424: Advanced Programming Techniques, Assembly Language in CS 225: Computer Organization and Assembly Language, and a variety of programming languages in CS 336). Students also complete 18 credit hours in advanced course work that builds on fundamentals.

Table 5.3: Requirements from the ABET Program Criteria and GSU CS Program

Curricular Area	Required by the ABET Program Criteria for Computer Science	Required to Complete the GSU CS program
Mathematics and Science	1 year (6 credit hours)	33 credit hours
Computer Science	1 1/3 year (7 credit hours)	46 credit hours
General Education		41 credit hours

6. CS 405: Software Development, the capstone course, provides students with an experience in a project that requires extensive teamwork. These projects can be selected by the students with the consent of the instructor and some practical experiences are facilitated with extramural research funding. The project is constantly monitored by the instructor. In addition, students present the current status of their work every two weeks for comments from other students in the capstone course. The capstone course is offered each spring and students are provided opportunities to present their projects at the *Phillip Young Symposium*, where faculty and students of science and technology attend. Some of the students continue to work on their projects for several semesters and present their projects at a technical meeting, e.g., the Louisiana Academy of Sciences Symposium and HBCU-Up Conferences.

The capstone course provides students opportunities to hone their presentation skills, research skills, special knowledge in designing user-friendly interface, and implementation skills. The projects are evaluated depending upon the presentations and the report. This capstone experience helps students attain all student outcomes except S8 and S9.

7. Cooperative experiences are encouraged but not substituted for any of the courses. Students can continue the coop projects as a project for the capstone course.

At the time of the site visit, the evaluation team will be provided a folder for each CS class from the curriculum that includes:

- Course description – including a list of student outcomes supported by the course
- Course syllabus – including the name of the textbook
- Sample student work – highest, medium and lowest samples of tests, assignments and project documents
- Additional material provided as part as the course material

In addition, all textbooks will be on the display. The relationship between student outcomes and the curriculum courses is provided in the table included in Criterion 5. Section A, item 3.

B. Course Syllabi

In Appendix B, include a syllabus for each course used to satisfy the mathematics, science, and discipline-specific requirements required by Criterion 5 or any applicable program criteria. For required courses with multiple sections that do not use a common syllabus, please include a syllabus for each of the different sections

Table 5-1 Computer Science Curriculum

Course (Department, Number, Title) List all courses in the program by term starting with first term of first year and ending with the last term of the final year. **First Semester - Freshman year**	Indicate Whether Course is Required, Elective or a Selective Elective by an R, an E or an SE[2]	*Curricular Area (Credit Hours)*				Last Two Terms the Course was Offered: Year and, Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered[1]
		Math & Basic Sciences	Computing Topics Mark with an F or A for Fundamental or Advanced	General Education	Other		
BIOL 113 – Principles of Biology I	R	X				Fall 2010, Spring 2011	**225**
BIOL 115 –Principles of Biology I – Lab	R	X				Fall 2010, Spring 2011	**200**
FYE 101 - First Year Experience I	R			*X*		Fall 2010, Spring 2011	**730**
ENG 101- Freshman Composition I	R			*X*		Fall 2010, Spring 2011	**745**
MATH 153 – Calculus I	R	X				Fall 2010, Spring 2011	**135**
CS 110 – Computer Science I	R		*F*			Fall 2010, Spring 2011	**20**
Course (Department, Number, Title) List all courses in the program by term starting with first term of first year and ending with the last term of the final year. **Second Semester - Freshman year**	Indicate Whether Course is Required, Elective or a Selective Elective by an R, an E or an SE[2]	*Curricular Area (Credit Hours)*				Last Two Terms the Course was Offered: Year and, Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered[1]
FYE 102 – First Year Experience II	R			*X*		Fall 2010, Spring 2011	**730**
ENG 102 – Freshman Composition II	R			*X*		Fall 2010, Spring 2011	**150**
HIST 101 – History of Western Civilization I	R			*X*		Fall 2010, Spring 2011	**440**
HIST 104 – Modern World History	R			*X*		Fall 2010, Spring 2011	**380**

MATH 154 – Calculus II	R	X				Fall 2010, Spring 2011	**62**
CS 120 – Computer Science II	R		*F*			Fall 2010, Spring 2011	**10**
Course (Department, Number, Title) List all courses in the program by term starting with first term of first year and ending with the last term of the final year. **First Semester - Sophomore year**	Indicate Whether Course is Required, Elective or a Selective Elective by an R, an E or an SE[2]	*Curricular Area (Credit Hours)*				Last Two Terms the Course was Offered: Year and, Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered[1]
MATH 201 – Calculus III	R	X				Fall 2010, Spring 2011	**48**
GET 300 (NOT REQUIRED)							
ENG 200 – World Literature I	R			*X*		Fall 2010, Spring 2011	**315**
PHYS 153 – General Physics I	R	X				Fall 2010, Spring 2011	**18**
PHYS 153L - General Physics I Laboratory	R	X				Fall 2010, Spring 2011	**15**
PA 201 - Ethics for Public Service / BIOL 407 - Ethics	R			*X*		Fall 2010, Spring 2011	**Not offered**
CS 210 – Discrete Structures	R		*F*			Fall 2010, Spring 2011	**10**
Course (Department, Number, Title) List all courses in the program by term starting with first term of first year and ending with the last term of the final year. **Second Semester - Sophomore year**	Indicate Whether Course is Required, Elective or a Selective Elective by an R, an E or an SE[2]	*Curricular Area (Credit Hours)*				Last Two Terms the Course was Offered: Year and, Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered[1]
MATH 273 – Probability & Statistics I	R	X				Fall 2010, Spring 2011	**82**
ENG 207 – Intro. To Technical Writing	R			*X*		Fall 2010, Spring 2011	**73**
ST 212 – Fund. Of Public	R			*X*		Fall 2010,	**46**

Speaking						Spring 2011	
CS 225 – Computer Organization & Assembly Language	R		*F*			Fall 2009, Fall 2010	**10**
CS 235 – Data Structures	R		*F*			Fall 2010, Spring 2011	**10**
Course (Department, Number, Title) List all courses in the program by term starting with first term of first year and ending with the last term of the final year. **First Semester - Junior year**	Indicate Whether Course is Required, Elective or a Selective Elective by an R, an E or an SE[2]	*Curricular Area (Credit Hours)*				Last Two Terms the Course was Offered: Year and, Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered[1]
MATH 309 - Introduction to Linear Algebra	R	X				Fall 2010, Spring 2011	**7**
PHYS 154 – General Physics II	R	X				Fall 2010, Spring 2011	**12**
PHYS 154L - General Physics II Laboratory	R	X				Fall 2010, Spring 2011	**10**
CS 310 – Software Engineering	R		*F*			Fall 2009, Fall 2010	**10**
CS 336 – Programming Language Concepts	R		*A*			Fall 2009, Fall 2010	**10**
Course (Department, Number, Title) List all courses in the program by term starting with first term of first year and ending with the last term of the final year. **Second Semester - Junior year**	Indicate Whether Course is Required, Elective or a Selective Elective by an R, an E or an SE[2]	*Curricular Area (Credit Hours)*				Last Two Terms the Course was Offered: Year and, Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered[1]
SOC 101 – Introduction to Social Science	R			*X*		Fall 2010, Spring 2011	**490**
MATH 274 - Probability & Statistics II	R	X				Fall 2010, Spring 2011	**22**
MATH 421 – Numerical methods I	R	X				Fall 2010, Spring 2011	**5**
CS 320 – Database Management Systems	R		*F*			Spring 2010, Spring 2011	**10**

CS 345 – Operating Systems	R		*A*			Spring 2010, Spring 2011	**10**
CS 360 – Design & Analysis of Algorithms	R		*A*			Spring 2010, Spring 2011	**10**
Course (Department, Number, Title) List all courses in the program by term starting with first term of first year and ending with the last term of the final year. **First Semester - Senior year**	Indicate Whether Course is Required, Elective or a Selective Elective by an R, an E or an SE[2]	*Curricular Area (Credit Hours)*				Last Two Terms the Course was Offered: Year and, Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered[1]
ART 210 – Introduction to Fine & Performing Arts	R			*X*		Fall 2010, Spring 2011	**503**
Spanish or French 101	R			*X*		Fall 2010, Spring 2011	**160**
CS 414 – Computer Architecture	R		*A*			Fall 2009, Fall 2010	**10**
CS 424 – Advanced Programming Techniques	R		*A*			Fall 2009, Fall 2010	**4**
CS 456 – Special Topics in Computer Science	SE		*A*			Spring 2010	**7**
CS 450 – Parallel Processing	SE		*A*			Spring 2011	**11**
Course (Department, Number, Title) List all courses in the program by term starting with first term of first year and ending with the last term of the final year. **Second Semester - Senior year**	Indicate Whether Course is Required, Elective or a Selective Elective by an R, an E or an SE[2]	*Curricular Area (Credit Hours)*				Last Two Terms the Course was Offered: Year and, Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered[1]
ECON 201 – Principles of Economics	R			*X*		Fall 2010, Spring 2011	**389**
CHEM 101 – Environmental Chemistry	R			*X*		Fall 2010 Spring 2011	**138**
Spanish or French 102	R			*X*		Fall 2010, Spring 2011	**68**
CS 400 – Computer Science Seminar	R		*A*			Spring 2010, Spring 2011	**8**

CS 405 - Software Development (Capstone Course)	R		*A*			Spring 2010, Spring 2011	**10**
CS 419 – Computer Networks	R		*A*			Spring 2010, Spring 2011	**10**
CS 459 - Special Topics in Database Management Techniques	SE		*A*			Fall 2010	**8**
CS 428 – Computer Graphics	SE		*A*			Fall 2010	**Not offered**
CS 426 – Artificial Intelligence	SE		*A*			Spring 2011	**Not offered**
Add rows as needed to show all courses in the curriculum.							
OVERALL TOTAL CREDIT HOURS FOR THE DEGREE		125	*33*	*48*	*44*		
PERCENT OF TOTAL		100	*26.4*	*38.4*	*35.2*		

1. For courses that include multiple elements (lecture, laboratory, recitation, etc.), indicate the average enrollment in each element.
2. Required courses are required of all students in the program, elective courses are optional for students, and selected electives are courses where students must take one or more courses from a specified group.

Instructional materials and student work verifying compliance with ABET criteria for the categories indicated above will be required during the campus visit.

CRITERION 6. FACULTY

A. Faculty Qualifications

Describe the qualifications of the faculty and how they are adequate to cover all the curricular areas of the program and also meet any applicable program criteria. This description should include the composition, size, credentials, and experience of the faculty. Complete Table 6-1. Include faculty resumes in Appendix B.

The Department has four Computer Science faculty of diverse education, ethnic and professional background. This faculty provides quality instruction and laboratory experiences in the CS program. As highlighted in their resumes, the four faculty members have terminal degrees (Ph.D.) in computer science. Their areas of expertise enhance the CS curricula and expand the scope of training offered to students. The faculty areas of expertise include recognition and artificial intelligence, computational and applied science-database management, web security, pattern recognition, mapping and wireless network.

Table 6-1. Computer Science Faculty Qualifications

Faculty Name	Highest Degree De Eamed- Field and Year	Rank [1]	Type of Academic Appointment [2] T, TT, NTT	FT or PT [4]	Years of Experience			fessional Registration/ Certification	Level of Activity H, M, or L		
					Govt./Ind. Practice	Teaching	This Institution		ssional Organizations	ssional Development	tting/summer work in industry
Yenumula B Reddy	Ph. D	P	T		33	25	25		M	H	M
Djamel Bouchaffra	Ph. D	ASC	TT		11	10	4		M	H	M
Brenda Miles	Ph. D	AST	T		15	15	15		M	L	L
Nelly Gassant	Ph. D	AST	TT		4	2	2	Java Enter-prise Certified Architect	M	M	L
	Faculty are IEEE/ACM members										

Instructions: Complete table for each member of the faculty in the program. Add additional rows or use additional sheets if necessary. Updated information will be provided at the time of the site visit. 1. Code: P = Professor ASC = Associate Professor AST = Assistant Professor I = Instructor A = Adjunct O = Other; 2. Code: TT = Tenure Track T = Tenured NTT = Non Tenure Track; 3. The level of activity, high, medium or low, should reflect an average over the year prior to the visit plus the two previous years at the institution

The Computer Science faculty members are active with committee assignments and on professional editing boards that publish proceedings and journals. The faculty members provide professional services as moderators at conference meetings. Also, the CS faculty serves regularly on university-wide committees. Table 6-1 below illustrates faculty qualifications in the Computer Science program.

B. Faculty Workload

Each faculty member is typically assigned 3 courses equal to 9 credit hours in a semester unless there is an unusual need to offer a particular CS course. This may happen once in two or three years. A sample teaching load is provided in Table 6-2.

The core courses are offered once a semester and advanced courses are offered once a year. The service courses will be discontinued starting from fall 2011. Each faculty member teaches 3 courses (9 credit hours) a semester totaling 12 courses (36 credit hours) in a year. With the current load and faculty, students will graduate on schedule without delay unless the student makes changes to the advised student schedule.

Moreover, each faculty member is provided time equivalent to one class for conducting research in his/her research area for at least one semester per academic year; and in turn shares the knowledge with students and guides a research or special project. Faculty members find a balance of time and efforts by accepting some students as research assistants. The faculty and students form a team and present their projects at regional, national and international conferences. The conference presentation of the work is in addition to classroom presentation.

C. Faculty Size

Discuss the adequacy of the size of the faculty and describe the extent and quality of faculty involvement in interactions with students, student advising, and oversight of the program.

Currently, the Mathematics and Computers Science Department has sixteen faculty members; of which, four hold the terminal degree in Computer Science. Among these four faculty members the responsibilities of teaching, advising, and research in Computer Science are carried out. These four faculty members provide adequate instruction in core computer science courses to satisfy the class offerings at each level; and they provide the consistency needed to offer science electives as needed to complete curriculum requirements over a four year matriculation period. Class scheduling is coordinated by a Computer Science faculty member and communicated to the department head before a class schedule is posted officially for enrollment. Upper-level elective course(s) are offered at least once an academic year. Academic advisors discuss the need to offer elective courses with the faculty coordinator ahead of scheduling deadlines.

The CS faculty take on the responsibility of academic advising beginning with the freshman year. All students to enter the program are assigned to an academic advisor within the first year of entering the program. Each faculty member is assigned 15 to 20 students for advisement. An academic advising coordinator facilitates the duties of student assignment, ensuring the advising process is explained to each student upon entering the program.

Some of the faculty members are current in training research with high-end publications and others have focused on improvements in educational training knowledge and improvements in pedagogy and innovative teaching strategies.

Program oversight is the responsibility of the CS faculty, department head, associate dean, and dean of the College of Arts and Sciences. In addition to regular faculty meetings, the associate dean, department head, and CS faculty share in the day to day management of the program. Special needs are addressed both formally and informally with the dean of the College.

D. Professional Development

Describe the professional development activities that are available to faculty members.

Professional development activities are encouraged for STEM faculty within the College of Arts and Sciences. Travel support is offered to faculty to attend professional conferences and workshops upon request and depending on availability of funds. They continually further their knowledge in the field by participating in professional development activities. These activities include participation in professional training, participation in professional societies, attending technical conferences, and engaging in professional work experiences. Faculty members have presented and published their work in international conferences and journals. For example, extramural support from the Title III (faculty development) program supported one of the current faculty members to complete the Ph. D. in Computational Science during the last review. At this time another faculty member of the Mathematics and Computer Science Department is pursuing the terminal degree in the same program, also being supported by Title III. The faculty member has completed the fourth year of support to complete and is expected to be done within the next six months.

Most faculty members attend at least one conference every year and some have formed collaborative research interests with colleagues at other universitys on research related work.

- Faculty members published their work at conferences and in journals.
- Faculty and Student Teams (FaST) in the CS program travel to conferences to present their research work.
- Faculty members modify the contents of the courses as needed by current state of technology.
- New topics are introduced in Special topics class, since the contents and subject is flexible.

Most faculty members attend at least one conference every year and some have formed collaborative research interests with colleagues at other universities on research related work. Faculty participated in the following activities:

- The faculty members published their work in conferences and journals.
- Faculty and Student Teams (FaST) in the CS program travel to conferences to present the research work.

- The faculty members modify the contents of the courses as needed by current state of technology.
- New topics are introduced in Special topics class, since the contents and subject is flexible.

The CS faculty have participated in (20) faculty development activities in the past two years. Find below is a sample table of select workshops or conferences attended by faculty to enhance knowledge in the field.

Name of Conference	Location
7th International Conference on Information Technology	Las Vegas, NV
2008 ACM Symposium	Ceara, Brazil
Procs. of 2nd IEEE Intl Multi-conference on computing	Guadeloupe, French Caribbean
21st Int. Conf. on Object-Oriented Programming	Portland, Or
Intl Workshop on Appl Security Serv Web and Pervasive ***eN***vironments (2007)	HuangShan, China
3rd Int Conf. on Availability, Reliability, and Security (ARES 2008)	Ceara, Brazil
IASTED (2010)	Marino Del Ray, CA
HBCU UP national Conference	Washington, DC

E. Authority and Responsibility of Faculty

Describe the role played by the faculty with respect to course creation, modification, and evaluation, their role in the definition and revision of program educational objectives and student outcomes, and their role in the attainment of the student outcomes. Describe the roles of others on campus, e.g., dean or provost, with respect to these areas.

The Computer Science faculty is responsible for defining revising, and implementing program educational objectives. Faculty members are responsible to guide students on research topics to enhance their knowledge to research and creative works activities. Also, the computer science faculty must ensure the program supports the mission of Grambling State University.

The CS faculty is directly involved with the program stakeholders, including the advisory board. The CS faculty participates in departmental meetings and engages in discussions relative to program educational objectives. The CS faculty utilizes both formal and informal discussions to revise program educational objectives after reviewing assessment data. When a course is added to the curriculum or removed from the curriculum the CS faculty is responsible for the decision. Approval of curriculum changes must be facilitated by a majority vote of the CS faculty.

The CS program coordinator along with the head of department and associate dean have the responsibility for ensuring that consistency in the content of courses as well as the rigor of courses are maintained. This is done by making sure that only instructors with the appropriate training are assigned to teach a specific course. Additionally, each CS faculty is required to submit graded work for all computer science courses to the department secretary.

This information is compiled and shared with the program coordinator as well as the head of the department.

As students and faculty participate in research activities at other colleges (summer REU) or within an industrial setting, information is brought back to the university and discusses during CS formal meetings. Also, faculty colleagues discuss new innovations and ideas that are shared among their interactions in professional networks and societies. Such interactions are typically the manner in which changes to the curriculum are motivated.

The CS faculty and Department head evaluate PEOs and SOs from the data collected by the faculty. Whenever a revision of the PEOs and/or SOs is needed, the College Dean, Associate Dean, Department Head, the advisory committee, CS student representatives and CS faculty are involved in the discussions.

Table 6-2. Faculty Workload Summary for Computer Science

Faculty Member (name)	PT or FT[1]	Classes Taught (Course No./Credit Hrs.) Term and Year[2]	Program Activity Distribution[3]			% of Time Devoted to the Program[5]
			Teaching	Research or Scholarship	Other [4]	
Yenumula B Reddy	FT	**Spring 2011:** CS 405(3), CS 419(3), CS 450 (3) **Fall 2010:** CS 310(3), CS 414(3), CS 414(3) **Spring 2010:** CS 405(3), CS 419(3), CS 450(3), and CS 400 (1) **Fall 2009:** CS 310(3), CS 414(3), CS 414(3), CS 360(3)	75% 75% 83% 100%	5 students	25%	100%
Djamel Bouchaffra	FT	**Spring 2011:** CS 107(3), CS 107(3), CS 210 (3) **Fall 2010:** CS 107(3), CS 120(3), CS 210(3), CS 235(3) **Spring 2010:** CS 210(3), Cs 235(3), CS 426(3) **Fall 2009:** Math 147 (3), CS 110 (3), CS 428 (3)	75% 100% 75% 75%		25%	100%
Brenda Miles	FT	**Spring 2011:** CS 235(3), CS 320(3), CS 360 (3) **Fall 2010:** CS 107(3), CS 300(1), CS 336(3), CS 459(3) **Spring 2010:** CS107(3), CS 110(3), CS 320(3) **Fall 2009:** CS 110 (3), CS 235 (3), MATH 147 (3)	75% 83% 75% 75%		25%	100%
Nelly	FT	**Spring 2011:** CS 110 (3),	83%		25%	100%

Gassant		CS 120(3), CS 3 45 (3), CS 400 (1) **Fall 2010:** CS 225(3), CS110(3), CS 110(3) **Spring 2010:** CS 120 (3), CS 345 (3), CS 456 (3), CS 107(3) **Fall 2009:** CS 300 (1), CS 107(3), CS 107 (3), CS 225(3)	75% 100% 83%			

1. FT = Full Time Faculty or PT = Part Time Faculty, at the institution
2. For the academic year for which the self-study is being prepared.
3. Program activity distribution should be in percent of effort in the program and should total 100%.
4. Indicate sabbatical leave, etc., under "Other."
5. Out of the total time employed at the institution.

CRITERION 7. FACILITIES

A. Offices, Classrooms and Laboratories

Summarize each of the program's facilities in terms of their ability to support the attainment of the program educational objectives and student outcomes and to provide an atmosphere conducive to learning.

1. Offices **(**such as administrative, faculty, clerical, and teaching assistants) and any associated equipment that is typically available there.

2. Classrooms and associated equipment that is typically available where the program courses are taught.

3. Laboratory facilities including those containing computers (describe available hardware and software) and the associated tools and equipment that support instruction. Include those facilities used by students in the program even if they are not dedicated to the program, and state the times they are available to students. Complete Appendix C containing a listing the major pieces of equipment used by the program in support of instruction.

The Mathematics and Computer Science Department is housed on the first floor of Carver Hall and utilizes six classrooms which are located on the second floor, a conference room along with three computer laboratories. Each CS faculty member has at least one office with Windows XP Pro. If faculty members require Linux operating system, the office workstation will have dual boot facility. In addition the faculty members are given LCD projector for classroom instruction. The faculty members use the university laptop or personal laptop for classroom instruction. Further the workstation and/or laptop is used for research purposes. Faculty members also have access to a conference room (509 sq. ft.) where regular meetings are held.

The six classrooms are CH 268 (949 sq. ft.), CH 279 (949 sq. ft.), Ch 280 (800 sq. ft.), CH 281 (708 sq. ft.), CH 282 (836 sq. ft.). The class size for core or advanced courses (except CS 110) in computer science has never reached 20. The class size of the courses is usually less than 15 students. Another factor that supports students/faculty interaction is the computer laboratories are located near the faculty office suite. This facility helps the students to interact with faculty of any problem in the lab. Blackboard and email facility supports the student learning, lecture notes, and testing facility.

Three computer laboratories are available for computer science majors. The computer lab CH 277 is equipped with 28 new computers and used for core courses. Each computer is cloned with windows 7 operating system and JavaBeans and needed software. The Junior/Senior student's computer lab (CH 286) has 16 networked computers and two independent computers. Depending upon class need students will have administrative facility. The computers also used for special projects. The computer lab CH 276 is a general lab will be used by all computer science majors. Non-majors taking computer classes have the same access to computer labs as computer science majors. Specifically, specifications for the labs are as follows: (See Appendix C for detailed list of equipment).

Lab 1, located in CH 276 (821 sq. ft.), is equipped with 25 computers and is a general laboratory used by all students enrolled in CS classes.

Lab 2, located in CH 277 (1089 sq. ft.), is equipped with 28 computers (purchased in fall 2010), cloned with Windows 7 operating system and used by CS freshmen and upper level CS majors for core courses. Various software packages are available.

Lab 3, located in CH 286 (517 sq. ft.), is equipped with 18 networked computers (including two new computers). This lab is used for Junior/Senior programming, artificial intelligence, and robotics projects. Specialty software packages are installed on all computers in Lab 3.

C. Computing Resources

Describe any computing resources (workstations, servers, storage, networks including software) in addition to those described in the laboratories in Part A, which are used by the students in the program. Include a discussion of the accessibility of university-wide computing resources available to all students via various locations such as student housing, library, student union, off-campus, etc. State the hours the various computing facilities are open to students. Assess the adequacy of these facilities to support the scholarly and professional activities of the students and faculty in the program.

Special projects require independent computing facility. Students load the needed operating system (XP, Windows 7, Linux, etc) and needed tools. No illegal software is loaded on the systems in the computer labs. Three computers provide 3 computers in the lab with MATLAB facility for the students and for needed faculty members in their offices.

The computing facility is available from 8:00 a.m. to 9:00 p.m. Monday-Thursday, 8:00 a.m. – 12:00 p.m. on Friday, and 10:00 a.m. – 6:00 p.m. on Saturday. Since most of the students have personal computers, they work from their dormitories/apartments/houses. Dormitories have Internet access facilities and students are responsible for Internet facility in their apartments/houses. The University computing facilities are also available for students in library, student union, and JTS building which are opened in late hours and weekends. These are general purpose facilities and department facilities are used for special projects.

(See Appendix C for detailed list of computing equipment).

C. Guidance

Describe how students in the program are provided appropriate guidance regarding the use of the tools, equipment, computing resources and laboratories.

Students are provided appropriate guidance regarding the use of the tools, equipment, computing resources found in the laboratories. A laboratory technician is available during evenings and weekends to assist students in using the tools and equipment in the lab. A full time system's administrator is available to install, maintain, repair, security, computer networking printer.

D. Maintenance and Upgrading of Facilities

Describe the policies and procedures for maintaining and upgrading the tools, equipment, computing resources and laboratories used by students and faculty in the program.

Computer Science faculty and the Systems Administrator collaborate in identifying equipment needs. Department facilities in instructional laboratories are replaced as needed or with the computer resource management committee (CRMC) recommendations. The 3-year warranty normally is procured at the time of purchasing the equipment (maintenance is included in the initial purchase price). Extended warranties are purchased as needed. Machines retired from the laboratories are returned to the university receiving department according to state policy. The purchase of computer equipment process is as follows:

The department has an adequate number of laboratory equipment and facilities to meet the instructional needs of faculty and students. The computers in the CH 277 laboratory are new and in CH 276 and CH 286 are less than two years old. All laboratories have Internet connection and printing facility.

The systems administrator periodically assesses the adequacy of computing facilities based on the demand of students and faculty use. This assessment is reviewed by departmental Laboratory Resource Management Committee and recommendations are made to the department chair to enhance the hardware and software facilities.

E. Library Services

Describe and evaluate the capability of the library (or libraries) to serve the program including the adequacy of the library's technical collection relative to the needs of the program and the faculty, the adequacy of the process by which faculty may request the library to order books or subscriptions, the library's systems for locating and obtaining electronic information, and any other library services relevant to the needs of the program.

The A.C. Lewis Memorial Library serves as the information and knowledge center for the students and faculty of Grambling State University (GSU). It is the responsibility of the library to provide quality services and equitable access to resources in all formats, which effectively implement, support, and enrich the university's mission and goals. The primary purpose of the library is to promote and support the undergraduate, graduate, professional, continuing education, distance education and global education programs.

The library pursues its mission through a quality collection, shared resources, agreements and cooperation with other libraries, and access to electronic resources. The library is committed to excellence in meeting the information needs of a diverse clientele through a competent and courteous staff, student and faculty involvement, and a total commitment from the university.

The A.C. Lewis Memorial Library is a two story, 86,720 square foot, open-stack facility that is central to the Grambling State University campus. It provides shelving for books, magazines, journals and newspapers. Study seating is available for approximately 700 patrons. Each floor offers varied study areas that include individual carrels, small tables, conference rooms and study/lounge chairs located adjacent to the books, periodicals and other resources.

Library operations are automated on the SirsiDynix Symphony System. The library online catalog, Grambling Online Public Access Catalog (GOPAC)/eLibrary, provides bibliographic access to all GSU Library resources and all academic library resources statewide. The GSU Library has approximately 100 public use personal computers (PCs) connected to databases through a Local Area Network (LAN). Most library electronic resources are accessible to patrons from any Internet PC on or off campus. Electronic resources include full-text journals, electronic books (e-books), and newspapers as well as bibliographic citations, indexes and abstracts, and numeric data. GOPAC/eLibrary provides thousands of direct links to full-text electronic books, and journals. Photocopying and PC printing services are available at $0.25 per page.

A student-operated computer lab with approximately 25 PCs and free printing is also available to GSU students. This lab provides open access to the Internet and to software that students can use to prepare and print their work.

The Mary Watson Hymon Afro-American Center houses the African-American special collection. It contains a cross-discipline of resources by and about African Americans and people of African/Caribbean descent. Rare editions are housed in the restricted collection.

The Microtext/ Media area contains micro-format resources: microfiche, microfilm, films, video tapes, cassettes, filmstrips, slides, loops, recordings and other audio visual resources.

Services include Interlibrary Loan (via GOPAC/eLibrary or in-person), document delivery, online and in-person reserves, on-line library tutorials and in-person bibliographic instruction that incorporate a hands-on orientation to electronic resources.

There is a written agreement between Grambling State University and Louisiana Tech University under which students at both institutions can access each other's resources. Under this program, students at Grambling State University have full access to all the library resources at Louisiana Tech University. The universities are located at close proximity.

The library strives to follow the standards recommended by the Association of College & Research Libraries, a division of the American Library Association. The library is a member of the Louisiana Library Association and an active participant in the Louisiana Libraries Information University Information Network Consortium (LALINC), the online Computer Library Center (OCLC), LYRASIS, nation's largest regional non-profit membership organization serving libraries, and the statewide library consortium (LOUIS, the Louisiana Library Network). Additional information can be found on the university web-page at www.gram.edu.

Toward the end of each fiscal year, budget heads are asked to prepare statements of expenditure of their units for the forthcoming fiscal year. Projects determining expenditures derive from a strategic plan for the university. A meeting is convened with the Budget Committee during which the unit heads defend the budgets. Data deriving from this forum is used to prepare the budget for the next fiscal year.

The library staff includes 19 employees. Nine of the 19 employees are professional librarians. Student assistants are employed to help in all areas of the library.

The library's collection is quite adequate for the programs offered. Databases and individual titles/holdings lists in support of the Computer Science program are found on Grambling-Library web site (http://www.gram.edu/research/library/).

Faculty members are given the opportunity to recommend titles in their respective disciplines each year in an effort to purchase relevant up-to-date materials for the collection

The library's SirsiDynix Symphony Library Management System allows users access to the catalog, on-line references and electronic databases twenty four hours per day, seven days a week. Electronic resources are available on the LAN (Local Area Network) in the library and remotely via Internet. Faculty, staff and students can access journals, e-books and other electronic learning resources through the use of the "Remote Access Flyer" which identifies electronic addresses for resources.

The Interlibrary Loan/ILLIAD (Interlibrary Loan Internet Accessible Database) program provides users access to learning resources not owned by the A.C. Lewis Memorial Library. A cooperative lending agreement allows faculty, staff and graduate students access to electronic learning resources from any institution or library that participates in the ILL/ILLIAD program through LOUIS (Louisiana Library Network).

F. Overall Comments on Facilities

Describe how the program ensures the facilities, tools and equipment used in the program are safe for their intended purposes (See the 2011-2012 APPM II.G.6.b.(1)).

The instructional and learning environments are adequate and safe in classrooms and computer laboratories. The institute periodically practices for safety to fire, safety building security, health codes, and state required standards.

CRITERION 8. INSTITUTIONAL SUPPORT

- **Leadership**
  Describe the leadership of the program and discuss its adequacy to ensure the quality and continuity of the program and how the leadership is involved in decisions that affect the program.

  The leadership team is comprised of the Dean, Associate Dean, Department Head, and Program Coordinator. The leadership team is responsible for providing guidance and direction of the program with regards to accreditation standards and strategic planning. Also, the leadership team ensures implementation of curriculum development activities and program enhancements, program resource developments, facilitates faculty development opportunities; and is responsible for faculty and staff workload assignments. It is the individual duties of the dean and department head to conduct faculty and staff evaluations, respectively. The dean and associate dean make decisions on budgetary allocations, promotion of cross college collaborations, building on external collaborations, community relations, and establishing directives for the college units. The office of the associate dean, department head, and program coordinator are located in the same building. Day to day communications are consistent among the group and special needs are addressed immediately in both a formal or informal manner. The program management is structured such that the dean of the college provides administrative consultation with the unit and makes recommendations to the Provost on operations, hiring and budgetary matters. In addition, the Leadership team comes together to discuss administrative issues with faculty to address program and student concerns.

Leadership Team Members	Title
Dr. Evelyn Wynn	Interim Dean, College of Arts and Sciences
Dr. Danny Hubbard	Interim Associate Dean, College of Arts and Sciences
Dr. Frederick Semwogerere	Acting Depart. Head, Mathematics & Computer Science
Dr. Yenumula Reddy	Program Coordinator

The leadership responsibilities for the program are provided by the program coordinator under the direction of the department head who is responsible for both programs within the department. The acting department head was appointed in August 2009. The program coordinator is responsible for course scheduling, recommending faculty teaching assignments to department head and associate dean, program advisory board, and assisting with public relations and recruitment activities. In addition, the coordinator will assist the department head in the execution of other duties, as directed. The duties of the coordinator are, but not limited to, the following:

- Compile data and provide report to Dept. Head & Dean that relates to all survey results with graph indicating response for each survey question.
- Disseminate surveys to majors.
- Disseminate exit surveys to graduating majors.
- Disseminate surveys to graduates.
- Disseminate surveys to employers of graduates.

- Review laboratory classes and upgrade as needed.
- Review graded exams (lecture & lab) that were collected during an academic year for all courses required in respective program curriculum.
- Review laboratory reports that were collected during academic year for all labs required in respective program curriculum.
- Make equipment recommendations
- Provide senior level support for junior faculty
- Assist in recruitment activities
- Review Fall, Spring, & Summer Schedules

B. **Program Budget and Financial Support**

The Provost and Vice-President of Academic Affairs is the chief academic officer of the University. All recommendations from academic units, including budget requests, are made to that office by the dean of the College of Arts and Sciences. Within the College of Arts and Sciences the dean and associate dean reviews the budget needs of more than 15 units, collectively. Also, within the College of Arts and Sciences the associate dean plays a vital role in communicating the needs of STEM programs and providing direct contact with STEM departments on the day to day basis. The responsibility of identifying budgetary needs and making requests to the associate dean relies on the effective communication of the department head and faculty with the associate dean. The associate dean also manages the extramural and support funds provided by the University for STEM programs and identifies funds for faculty and student development activities. Over the past three years, the mathematics and computer science program has received an average of $15,000 per year in operating costs and maintenance services. However, as special requests are made the University has provided support (from sources like Title III, Scientific Enhancement, and Restricted funds) to the Mathematics and Computer Science department. For example, $40,669.00 in Scientific Enhancement funds was used to purchase thirty (30) new computers and software for curriculum enhancements to the CS program. Also, one faculty member is being supported to complete the terminal degree in Computational Analysis and Design funds provided by Title III faculty development component. Overall, the program budget and continuity of institutional support is adequate. During the spring semester the university has its budget planning process. Departments complete budget requests for the upcoming academic year. Units must include justifications for increases that are requested. The finance unit in conjunction with the Provost/Vice-President, make budget allocations for each academic department.

Grambling State University, Mathematics and Computer Science

Support Expenditures

Fiscal Year	2009/2010	2010/2011	(year of visit)[1]
Expenditure Category			
Operations (not including staff)	6,221	6,221	
Travel	8,762	11,296	
Equipment		40,669	
(a) Institutional Funds	6,992	42,784	
(b) Grants and Gifts[5]			
Part-time assistance (research assistants)	7,500	8,800	
Faculty Salaries (CS only)	220,105	274,105	

[1]Budget for 2011/2012 has not been published yet, will be available after July 1st

With a current enrollment of 64 computer science 64 majors and offering the core courses every semester and advanced courses once a year, the existing faculty is sufficient. The computing equipment was purchased through institutional and grant funding. The research students were supported by extramural grants to facilitate research and education in STEM. For example, there are six federally supported programs (e.g., Minority Leaders Program, DEPSCoR, HBCU UP, LS LAMP, INSG, NIH) that provide scholarship and research support to faculty and students. In addition, private donations from industry (e.g., Texaco, Caterpillar) are used to offer scholarship support to our majors. Further, the travel funds are supported by the programs listed above, including Title III, for student and faculty travel.

The program budget and continuity of institutional support is adequate. Since the enrollment is low in computer science (Currently 64 majors) and offering the core courses every semester and advanced courses once a year, the existing faculty is sufficient. The computing equipment was purchased through institutional and grant funding. The research students were supported by minority Leaders program (MLP), DEPSCoR, CMAST, LAMP, ING scholarship, and Caterpillar scholarships. Further, the travel funds are supported by CMAST, Title III, and MLP, LAMP, and DEPSCoR grants.

1. There are no graders or teaching assistants currently in place, since we are an undergraduate institute. We conducted workshops for high school teachers and students in Robotics and cyber security.
2. We acquire the Microsoft software licenses (Information Resource center) and internet support is through the University. The department system administrator maintains the hardware, software, and Internet related facilities. The System Administrator upgrades the systems, loads the software requested by faculty, and keeps the computer available to faculty and students without fail. The computing facilities are currently adequate.
3. The core courses have independent open computer lab facility (CH 277). Few times a year the core classes are conducted as closed class sessions. The senior classes are conducted in computer Lab CH 286 in addition to classrooms. Students are given

independent computers depending upon their projects (S5 and S9). All software in the computer labs is licensed. The licenses are strictly maintained.

4. For some of the independent projects students (individual or team) were provided the computer. They load the operating system needed to their project and develop the application (S10). The public domain tools are downloaded for project purpose, which is acceptable for all licenses.

C.Staffing

Describe the adequacy of the staff (administrative, instructional, and technical) and institutional services provided to the program. Discuss methods used to retain and train staff. Currently four faculty members are teaching the computer science and computer service courses. The core courses and service course are offered every semester and advanced courses are offered once a year.

The administrative head is called Department Head for computer science and mathematics. The staff includes an administrative assistant, system administrator, and technician for both programs.

The institutional facilities are adequate for the program in terms of space, computing facilities, conference support, instructional support, and student facilities.

The needed computing facilities are provided to students for the independent projects. Each faculty is equipped with laptop and LCD projector for instruction.

D. Faculty Hiring and Retention

The process for hiring of new faculty is described in the following narrative as well as the strategies used to retain current qualified faculty.

1. Upon the allocation of funds by the administration for a position, the position is advertised both locally and nationally. A departmental screening/search committee is set up to review all applications and interview applicants to determine the best qualified candidate for the position

2. The University and department provide all needed facilities to retain the faculty. All faculty members are accountable to their designated work. The faculty has travel money through Title III and CMAST project. Some faculty has funded grant money for travel. Many computer science students travel with faculty members to present their project work in conferences.

E. Support of Faculty Professional Development

Faculty members are encouraged to attend and present their work in regional, national and international conferences. Funds are available through CMAST, Title III, and Grants support.

The faculty regularly attends with students in Louisiana Academy of sciences and HBCU-UP conferences. Faculty members with students also attend ITNG conference. Students present their work in *Phillip L. Young Research Symposium* every year. Dr. Miles, from Computer science chairs and organizes the Phillip Young symposium.

Dr. Reddy conducts the *International symposium on Networking and Wireless communications* in connection with ITNG international conference. Grambling State University computer Science faculty members are executive board members of the journals and program committee members of many international conferences.

Grambling State University Hosted Louisiana Academy of Sciences (LAS) in 2005 chaired by Dr. Reddy (computer science faculty) and will be hosting in 2013, chaired by Dr. Reddy with the coordination of STEM faculty members. The conference brings more than 200 scientists to the university campus and exchanges their research contributions. Students are major participants in LAS.

PROGRAM CRITERIA

The Computer Science Program satisfies curriculum program criteria which are covered in Criterion 5. Student outcomes (j) and (k) for the program are described in Criterion 3 along with student outcomes from (a) to (i). All faculty members have Ph. D. in computer science.

APPENDICES

Appendix A – Course Syllabi

Please use the following format for the course syllabi (2 pages maximum in Times New Roman 12 point font)

1. Course number and name
2. Credits and contact hours
3. Instructor's or course coordinator's name
4. Text book, title, author, and year

    a. other supplemental materials

5. Specific course information
    a. brief description of the content of the course (Catalog Description)
    b. prerequisites or co-requisites
    c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program

6. Specific goals for the course
    a. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.
    b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.

7. Brief list of topics to be covered

COURSE DESCRIPTION

Course number: CS 110 **Course name: Computer Science I**

1. **Credits: 3 Contact Hours: 45**
2. **Instructor's or course coordinator's name: Nelly Delessy-Gassant**
3. **Textbook:** *An Introduction to Object-Oriented Programming with Java,* fifth edition, Wu, Thomas C., 2010, McGraw-Hill, ISBN: 978-0073523309
   a) Other supplemental material
   - Savitch, Walter J. et al, *Java: Introduction to Problem Solving and Programming,* 5th edition, Prenctice Hall, 2008, ISBN: 978-0136130888
   - Mughal, Khalid A. et al, *A Programmer's Guide to Java SCJP Certification: A Comprehensive Primer*, 3rd ed., Addison Wesley, 2008, ISBN: 978-0321556059
   - Malik, D.S, *Java Programming: From Problem Analysis to Program Design*, 4th ed., Course technology, Thomson Learning, Inc 2009, ISBN: 978-1439035665
   - Johnson, Richard, *An Introduction to Java Programming and Object-Oriented Application Development*, Course Technology, 2006, ISBN: 978-0619217464
   - Deborah G. Johnson, *Computer Ethics*, Prentice Hall; 4 ed., ISBN: 978-0131112414
   - E-reference: The Sun Java tutorials: http://download.oracle.com/javase/tutorial/
4. **Specific Course Information**
   a) Brief description of the content of the course
   Current Catalog Description**:** This course introduces computer science majors to programming and the scope of computer science. It covers the basics of hardware and software, number systems, program development, and object-oriented concepts. It also familiarizes students with the main areas of computer science including social and ethical issues.
   b) Prerequisites or co-requisites: College admission.
   c) Whether a required, elective, or selected elective (as per Table 5-1): Required
5. **Specific goals for the course**
   a) Specific outcomes of instruction
   After completing this course, students will:
   i. understand the concepts of computer hardware and software
   ii. understand and apply the necessary steps involved in program development (analysis/design/implementation/testing/debugging)
   iii. be able to discuss the importance of algorithms in the problem-solving process
   iv. discuss the philosophy of object-oriented design
   v. design programs with a small number of simple classes
   vi. understand and apply the fundamentals of Java language in order to code simple and medium type of programs
   vii. understand the social, ethical, and legal aspects involved in software development

   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices		X	
S2. analyze a problem and identify and define the computing requirements appropriate to its solution	X		
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs	X		
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project		X	
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences			X
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

I. Introduction to Computers

II. Hardware

5 Hours

a) Processor: ALU, registers, Control Unit
b) Main memory and the concept of stored-program machines
c) Machine instructions and the fetch-execute cycle, I/O devices
d) Data representation, binary number system

III. Software

1 Hour

a) Abstraction and programming languages, Compilation vs. interpretation

IV. Computers: Social and ethical issues

3 Hours

a) The ACM code of ethics
b) Security and privacy,Intellectual rights, proprietary software, shareware, and freeware

V. Introduction to Computer Science field

1 Hour

a) Areas mentioned in the ACM curriculum; plus others
b) Limitations of computation and current problems
c) Career opportunities

VI. Programming in Java

30 Hours

a) Variables: identifiers, primitive data types, Strings, scope
b) Operators and expressions, Simple I/O
c) Basic control flow (Selection and Repetition statements)
d) Methods and Arrays
e) Objects, Classes and Basic Object-Oriented design

VII. Tests/Exams/Quizzes

5 Hours

COURSE DESCRIPTION

Course number: CS 120 **Course name: Computer Science II**

1. **Credits: 3 Contact Hours: 45**
2. **Instructor's or course coordinator's name: Nelly Delessy-Gassant**
3. **Textbook:** *An Introduction to Object-Oriented Programming with Java,* fifth edition, Wu, Thomas C., 2010, McGraw-Hill, ISBN: 978-0073523309
   a) Other supplemental material
   - Savitch, Walter J. et al, *Java: Introduction to Problem Solving and Programming,* 5th edition, Prenctice Hall, 2008, ISBN: 978-0136130888
   - Mughal, Khalid A. et al, *A Programmer's Guide to Java SCJP Certification: A Comprehensive Primer*, 3rd ed., Addison Wesley, 2008, ISBN: 978-0321556059
   - Malik, D.S, *Java Programming: From Problem Analysis to Program Design*, 4th ed., Course technology, Thomson Learning, Inc 2009, ISBN: 978-1439035665
   - Johnson, Richard, *An Introduction to Java Programming and Object-Oriented Application Development*, Course Technology, 2006, ISBN: 978-0619217464
   - E-reference: The Sun Java tutorials: http://download.oracle.com/javase/tutorial/
4. **Specific Course Information**
   a) Brief description of the content of the course
   Current Catalog Description**:** This course emphasizes object-oriented program development and the basics of the concept of algorithmic complexity. It covers programming techniques and algorithms including recursion, exception handling, sorting, and searching. It also covers data structures such as linked lists, stacks, and queues.
   a) Prerequisites or co-requisites: A grade of C or better in CS 110
   b) Whether a required, elective, or selected elective (as per Table 5-1): Required
5. **Specific goals for the course**
   a) Specific outcomes of instruction
   After completing this course, students will be able to:
   i. Justify the object-oriented design principles
   ii. Design and implement programs using several classes related by inheritance and/or containment relationships
   iii. Explain the concept of exception conditions
   iv. Implement programs that catch or propagate exceptions raised during execution
   v. Implement program that process string data
   vi. Write simple programs that use arrays, string, linked lists, stacks and queues
   vii. Write programs that can read/write from/to files
   viii. Explain the concept of event-driven programming
   ix. Implement programs whose graphic user interface respond to user events
   x. Describe the concept of recursion and implement simple recursive methods
   xi. Describe the divide-and conquer approach
   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution	X		
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs	X		
S4. apply design and development principles in the construction of software systems of varying complexity	X		
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences			X
S8. analyze the local and global impact of computing on individuals, organizations, and society			X
S9. recognize the need for and engage in continuing professional development			X
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

I. Principles of Object-Oriented Design 9 Hours
   a) Classes and objects
   b) Relationships
   c) Encapsulation and data-hiding (visibility modifiers, packages)
   d) Inheritance and polymorphism (method overloading and overriding)
   e) Interfaces and implementation

II. Exception handling 3 Hours

III. String Processing 3 Hours

IV. Arrays and Collections 6 Hours

V. Introduction to Searching and Sorting 6 Hours

VI. Streams and File Input/output 3 Hours

VII. GUI and Event-Driven Programming 6 Hours

VIII. Recursive Algorithms 3 Hours

Tests/Exams/Quizzes 6 Hours

COURSE DESCRIPTION

Course number: CS 210 **Course name: Discrete Structures**

1. Credits and Contact Hours: 3

2. **Instructor's or course coordinator's name:** **Djamel Bouchaffra**
3. **Textbook:** Kenneth H. Rosen, *Discrete Mathematics and its Applications*, Sixth Edition, Mc Graw-Hill, © 2007, ISBN-13 9780073229720
4. **Specific Course Information**
   a) *Brief description of the content of the course*
   Current Catalog Description: This course covers the fundamental mathematical structures needed in the study of computing. Topics include sets, relations, functions, logic, Boolean algebra, combinatorics, trees, graphs, and finite state machines. The course also covers deductive and inductive proof techniques.
   b) *Prerequisites or co-requisites:* A Grade of C or better in CS 120.
   c) *Whether a required, elective, or selected elective (as per Table 5-1):* Required
5. **Specific goals for the course**
   a) *Specific outcomes of instruction*
   By the end of the semester, students enrolled in this course should:
   - grasp the foundations of Logic (propositions, predicates, and quantifiers)
   - capture the concepts of set theory and functions
   - understand what an algorithm is and the different ways algorithms are expressed
   - be capable to express the complexity of an algorithm
   - be able to relate number theory to major applications in Computer Science such as cryptography, pseudo-random numbers generators
   - should be able to prove some theorems using various forms of mathematical induction and equivalent techniques
   - capture the role of discrete probability theory to study the average case complexity of an algorithm
   - have a good grasp of the concept of relation with its transitive closure
   - be familiar with fundamental elements of graph theory and its applications
   - Design and implement simple assembly programs for the x86-64 architecture

   b) *Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course*

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices		X	
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs			X
S4. apply design and development principles in the construction of software systems of varying complexity			X
S5. effectively work on a group/individual project			X
S6. understand professional, ethical, legal, security, and social issues			X

and responsibilities			
S7. communicate effectively with a range of audiences			X
S8. analyze the local and global impact of computing on individuals, organizations, and society			X
S9. recognize the need for and engage in continuing professional development			X
S10. use current techniques, skills, and tools necessary for computing practice		X	

6. Brief list of topics to be covered

- The foundations: Logics and Proofs
- Basic Structures: Sets, Functions, Sequences and Sums
- The Fundamentals: Algorithms, the Integers, and Matrices
- Induction & Recursion
- Discrete Probability
- Relations
- Graphs
- Tests

COURSE DESCRIPTION

Course number: CS 225 **Course name: Comp. Org. & Assembly Language**

1. **Credits: 3 Contact Hours: 45**
2. **Instructor's or course coordinator's name: Nelly Delessy-Gassant**
3. **Textbook:** Tanenbaum, Andrew S. *Structured Computer Organization*, fifth edition, Prentice Hall, 2006, ISBN: 9780131485211
   a) Other supplemental material
   - David A. Patterson and John L. Hennessy, *Computer Organization & Design: The Hardware/Software Interface, , 2nd Edition*, Morgan Kauffman, 1998
   - Stallings, William *Computer Organization and Architecture*, 6th edition MacMillan
   - Carl Hamacher, Zvonko Vranesic and Safwat Zaky, *Computer Organization (5th ed)*, McGraw Hill, ISBN: 0-07-2320869
   - Jeff Duntemann, *Assembly Language Step-by-Step*, 2nd ed., Wiley, ISBN:9780471375234
4. **Specific Course Information**
   a) *Brief description of the content of the course*
   Current Catalog Description: This course covers the register-level architecture of modern computer systems. Topics include instruction formats, registers, addressing modes, instruction execution cycle, and I/O interfaces. An assembly language is studied and used in programming assignments.

   b) *Prerequisites or co-requisites*: A Grade of C or better in CS 120.
   c) *Whether a required, elective, or selected elective (as per Table 5-1):*
   Required
5. **Specific goals for the course**
   a) Specific outcomes of instruction
   After completing this course, students will:
   i. Appreciate the effect of AND, OR, NOT and XOR operations on binary data
   ii. Perform binary arithmetic in two's complement format
   iii. Identify and describe the main subsystems of a computer
   iv. Appreciate the concept of an instruction set architecture (ISA)
   v. Understand how a CPU's control unit interprets a machine-level instruction – either directly or as a microprogram.
   vi. Appreciate how conditional operations are implemented at the machine level.
   vii. Understand the way in which subroutines are called and returns made.
   viii. Understand and describe interrupts, DMA and data transfer.
   ix. Understand why a memory hierarchy is necessary to reduce the effective memory latency.
   x. Appreciate how superscalar architectures, pipelining, caches, speculative execution can help improving performance.
   xi. Design and implement simple assembly programs for the x86-64 architecture
   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None

S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences			X
S8. analyze the local and global impact of computing on individuals, organizations, and society			X
S9. recognize the need for and engage in continuing professional development			X
S10. use current techniques, skills, and tools necessary for computing practice		X	

6. Brief list of topics to be covered

a) Basic Structure of Computers 3 Hours
- Von Neumann architecture/Fetch-execute cycle; Historical Perspective
- Processors: CPU organization/Performance/Parallelism
- The Memory System: Memory organization/Cache memories
- Input/Output Organization: Buses/Interrupts/Direct Memory Access

b) Computer Arithmetic 8 Hours
- Number representation; Addition and Subtraction of Signed Numbers
- Multiplication of Positive numbers; Booth Algorithm

c) The Digital Logic Level 6 Hours
- Gates and Boolean Algebra; Digital Logic Circuits; Memory; CPU chips and buses

d) The Micro-architecture level 8 Hours
- Micro-programming vs. hardware control
- An example of micro-programmed architecture: The IJVM
- Improving performance: superscalar architectures, pipelining, branch prediction, out-of-order execution

e) The Instruction Set Architecture Level 6 Hours
- Data types/ Addressing Modes/Instruction formats/Expanding opcodes
- Example: The x86-64 architecture

f) Assembly Language Programming 9 Hours
- Numbers, Arithmetic Operations, and Characters
- Memory Locations and Addressing; Instructions and Instruction Sequencing
- Basic Input/Output Operations; Stacks and Queues; Subroutines

Tests/

COURSE DESCRIPTION

Course number: CS 235 **Course name: Data Structures**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Brenda Miles**
3. **Textbook: Michael T. Goodrich and Roberto Tamassia, *Data Structures & Algorithms in JAVA*, 5th edition, Wiley, 2010**
   - *Other supplemental material*C. Thomas Wu, Object-Oriented Programming with Java, 5th edition, McGraw-Hill, 2010
   - Neapolitan Maimipour, Foundations of Algorithms; Jones and Bartlett, 2011, ISBN:- 13: 978-0-7637-8250-4.

4. **Specific Course Information**
   a) Brief description of the content of the course

   Current Catalog Description: This course covers the definition, representation, manipulation, and application of data structures. Topics include arrays, lists, hash tables, indexes, stacks, queues, trees, graphs, and files. Concepts of time and space complexity are emphasized through various algorithms that manipulate internal and external data

   b) *Prerequisites or co-requisites: A grade of C or better in CS 235.*
   c) Whether a required, elective, or selected elective (as per Table 5-1): Required

5. **Specific goals for the course**
   a) Specific outcomes of instruction

   The student will:
   - implement address pointers to reference data organized in RAM.
   - use an objected-oriented programming language to model and instantiate the array, linked-list, stack, queue, binary tree, hash tables, and graph data structures.
   - demonstrate mastery of traversal/accessing techniques specific to each data structures.
   - select the more appropriate data structure(s) to solve a specific problem.
   - understand and apply fundamental aspects of basic updating, searching, sorting methods.
   - utilize and compare recursive and iterative algorithmic design techniques to solve several mathematical and sorting problems.
   - analyze the asymptotic running time of simple algorithms using Big-Oh notation.
   - present the implementation of his solution to a comprehensive mini-project which simulates/models a simple real world event that requires the use of a stack, queue, or tree structure.

   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution	X		
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences		X	
S8. analyze the local and global impact of computing on individuals, organizations, and society			X
S9. recognize the need for and engage in continuing professional development			X
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

a) Algorithm design and pseudocode (2 hours)
b) Object-oriented design using JAVA (3 hours)
c) Arrays, linked list and recursion (4 hours)
d) Traversing, accessing, ordering data in arrays and linked-lists (3 hours)
e) Analysis of algorithms (3 hours)
f) Node based operations (4 hours)
g) Stack and queues (5 hours)
h) Binary trees (4 hours)
i) Graphs (3 hours)
j) Project discussion and presentation (9 hours)
k) Tests (5 hours)

COURSE DESCRIPTION

Course number: CS 300 **Course name: Computer Science Seminar I**

1. **Credits and Contact Hours: 1**
2. **Instructor's or course coordinator's name: Brenda Miles**
3. **Textbook: None required**
   a) Other supplemental material
   - References: ACM, IEEE, and other related journals.
   - On-line digital libraries and other internet resource repositories.
4. **Specific Course Information**
   a) Brief description of the content of the course

   Current Catalog Description: This course offers students the opportunity to study topics not covered in regular courses. Students choose, subject to instructor's approval, a research topic. Students are required to present their findings in written reports and oral presentations.

   b) Prerequisite: A grade of *C* or better in CS 235.

   c) Whether a required or selected elective (as per Table 5-1): Required.

5. **Specific goals for the course**
   a) Specific outcomes of instruction
   The student will:
   - become acquainted with current topics and developments related to Computer Science and associated undergraduate research.
   - research contributions and impact of mathematicians and computer scientists (inclusive of Turing and Von Neumann) to Computer Science.
   - perform a literature search to locate and study refereed journal articles related to their selected research topic.
   - produce a technical research paper on selected research topic in Computer Science/Technology.
   - present research findings (use Power Point software) orally in a seminar setting.
   - Identify and apply for internship/co-op positions (in industry or academia) that reflect his current research interests.
   - study the social and ethical issues in computer science and information technology.
   - become responsible citizens socially, economically, ethically, and professionally.

   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and		X	

computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices			
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities	X		
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice		X	

6. Brief list of topics to be covered

a. History of Computers and Computer Technology (1 hour)
b. Contributions of mathematicians and others to advancements computer science. (3 hours)
c. Current topics in research and development (computer hardware and software) (4 hours)
d. Performing a Literature Search (1 hours)
e. Scientific journal article's style and format (0.5 hour)
f. Comparative studies (4 hours)
g. Funding sources for research (0.5 hours)
h. Ethical and social issues and responsibilities (1 hours)

COURSE DESCRIPTION

Course number: CS 310 **Course name: Software Engineering**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Yenumula Reddy**
3. **Textbook: Roger S. Pressman, *Software Engineering:* A Practitioner's Approach, 7th edition, McGraw Hill, 2005**
   a) Other supplemental material
   - Bernd Bruegge & Allen H. Dutoit, Object-Oriented *Software Engineering*, Using UM, Patterns, and Java (2nd ed), Prentice Hall, 2004. ISBN: 0-13-047110-0.
   - Stephen R. Schach, Classical and Object-oriented software engineering with UML and C++; McGraw-Hill, 1999,; ISBN:- 0-07-290168-3
   - Ian Sommerville, *Software Engineering*, 5th edition, Addison Wesley, 1995.
   - Bruce I Blum, *Software Engineering: A Holistic View*, Oxford University Press, 1992
4. **Specific Course Information**
   a) Brief description of the content of the course

   Current Catalog Description**:** This course covers the principles, methodologies, and tools used in the development of large-scale software systems. Students learn the various models that describe the stages of the lifecycle of large systems. The course emphasizes the technical, organizational, legal, and ethical aspects of software development.

   b) Prerequisites or co-requisites: *A grade of C or better in CS 235.*

   c) Whether a required, elective, or selected elective (as per Table 5-1): Required
5. **Specific goals for the course**
   a) Specific outcomes of instruction
   - Provide the concepts of software engineering, process models, agile process models, and compare various process models
   - Explain the concepts of project and discuss the selection of independent/group project
   - Explain the concepts of project requirements, analysis, and design and incorporate in the selected project
   - Discuss various testing strategies and techniques
   - Discuss the selected project at analysis, design, states as part of instruction
   - Discuss the problems of implementation of the project

   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution	X		
S3. design, implement, and evaluate a computer-based system,	X		

process, component, or program to meet desired needs			
S4. apply design and development principles in the construction of software systems of varying complexity	X		
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities	X		
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

7. Brief list of topics to be covered

6. Brief list of topics to be covered

i. Software and Software Process Models (2 hours)

j. Agile Process Models (3 hours)

k. Planning, Modeling, and construction of software systems (3 hours)

l. System Engineering (3 hours)

m. Requirements, and Specification (5 hours)

n. Software Design Concepts and Methods (3 hours)

o. Object Design (3 hours)

p. Software Testing Strategies and Techniques (9 hours)

q. Project discussion and presentation (9 hours)

r. Tests (5 hours)

COURSE DESCRIPTION

Course number: CS 320 **Course name: Database Management Systems**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Brenda Miles**
3. ***Textbook: Raghu Ramakrishnan & Johannes Gehrke, Database Management Systems, 3rd edition, McGraw Hill, 2003.***

a) Other supplemental material

- Thomas M. Connolly and Carolyn E. Begg, *Database Systems – A Practical Approach to Design, Implementation, and Management*, 4th edition, Addison Wesley, 2005
- Jan Harrington, *Relational Database Design and Implementation*, 3rd edition, Morgan Kaufmann, 2009.
- Jan Harrington, *SQL Clearly Explained*, 3rd edition, Morgan Kaufmann, 2010.

4. **Specific Course Information**

a) Brief description of the content of the course

Current Catalog Description: This course emphasizes data modeling and the theory and practice of the relational model. It covers the services offered by modern database management software and the role of such software in the development of systems. Non-relational models are also introduced.

b) *Prerequisites or co-requisites: A grade of C or better in CS 235.*

c) *Whether a required, elective, or selected elective (as per Table 5-1):* Required

5. **Specific goals for the course**

a) Specific outcomes of instruction

The student will:

- Understand the architecture of a DBMS and the function of its component parts.
- Understand the elements of designing a relational database management system.
- Identify, evaluate and organize the necessary information to design a database system.
- Understand and use queries in relational algebra and calculus
- Understand how databases systems organize the physical data
- Understand the importance of backup and recovery
- Use the Standard Query Language both as a query language and a data description language.
- Develop, implement and present (using Power Point) mini-projects which require utilization of appropriate design tools to model and implement conceptual, physical, and external schema.
- Identify and characterize other data representation framework models.

b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs	X		
S4. apply design and development principles in the construction of software systems of varying complexity	X		
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

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6. Brief list of topics to be covered

- Advantages of a DBMS (Compare w/File Systems) (1 hours)
- Architecture of A DBMS (2 hours)
- The relational DBMS model (5 hours)
- Entity-relationship modeling (3 hours)
- Relational Queries (3 hours)
- Relational Algebra and Calculus (4 hours)
- Structured Query Language (5 hours)
- File Organization and indexes (5 hours)
- Database Security (3 hours)

- Discussions and Presentations of projects
  (9 hours)

Tests

COURSE DESCRIPTION

Course number: CS 336 **Course name: Programming Language Concepts**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Brenda Miles**
3. Textbook: Michael L. Scott, *Programming Language Pragmatics*, 3rd Edition, 2009.
   a. Other supplemental material

   - **Ravi Sethi, *Programming Languages: Concepts and Constructs*, 2 Edition,** Addison- Wesley, 1996.
   - **Robert Sebesta**, ***Concepts of Programming Languages*,** 9rd edition**,** Addison-Wesley**,** 2009.
   - Internet websites' reference resources.

4. **Specific Course Information**
   a) Brief description of the content of the course
   Current Catalog Description: Provides a comparative study of the paradigms and constructs found in different programming languages. It also covers the run-time environment of programs. Formal methods for the specification of syntax and semantics are introduced.

   b) *Prerequisites or co-requisites: A grade of C or better in CS 235.*

   c) *Whether a required, elective, or selected elective (as per Table 5-1):* Required

5. **Specific goals for the course**
   a) Specific outcomes of instruction

   The student will:
   - The student will be able explain the difference between declarative and imperative languages.
   - Understand the syntax and semantics of at least three programming languages.
   - Understand how languages are designed and implemented.
   - Recognize the models of language design (imperative, applicative, ruled-based, and object oriented) and their common characteristics.
   - Evaluate which programming language is more suitable for solving specific problems.
   - Understand comparative analysis on programs involving at least three of the programming languages representing the different models of language design.
   - The student will be able to explain naming, binding and scope rules for Java programming environment in GSU CS student computer lab.
   - The student will be able to design a context free grammar for a simple calculator and implement a scanner (tokenizer) and parser routines for two other programming languages.
   - Prepare an oral presentation for Q/A class session on key programming language concepts.

b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices		X	
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences		X	
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

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6. Brief list of topics to be covered

- Role of programming languages (3 hours)
- Programming paradigms (5 hours)
- Language description: syntactic structure (5 hours)
- Structured programming (4 hours)
- Types: data representation (4 hours)
- Procedure activations (4 hours)
- Object-oriented programming (3 hours)
- Elements of functional programming (6 hours)
- Elements of logic programming (6 hours)

- Language description
  (5 hours)

COURSE DESCRIPTION

Course number: CS 345 **Course name: Operating Systems**

1. **Credits: 3 Contact Hours: 45**
2. **Instructor's or course coordinator's name: Nelly Delessy-Gassant**
3. **Textbook:** Silberschatz A. , G. Gagne and P.B. Galvin, *Operating System Concepts*, Eighth Edition, Wiley., 2008. ISBN: 978-0470509494

   a) Other supplemental material

   - Andrew Tanenbaum, *Modern Operating Systems* (3rd Edition), Prentice Hall; 2007, ISBN: 978-0136006633
   - William Stallings, *Operating Systems: Internals and Design Principles* (6th Edition), Prentice Hall; 2008, ISBN: 978-0136006329
   - Gary Nutt, *Operating Systems* (3rd edition), Addison-Wesley; 2003 .ISBN: 978-0201773446

4. **Specific Course Information**

   a) Brief description of the content of the course

   Current Catalog Description**:** This course introduces students to the evolution, structure, functions, and services of operating systems. Topics include resource management, performance, and security. Different operating systems are contrasted and compared.

   b) Prerequisites or co-requisites: A grade of C or better in CS 225 and CS 235.

   c) Whether a required, elective, or selected elective (as per Table 5-1): Required

5. **Specific goals for the course**

   a) Specific outcomes of instruction

   After completing this course, students will be able to:

   i. Describe the objectives and functions of an operating system
   ii. Compare the different operating system architectures
   iii. Describe design issues in operating systems and inherent trade-offs
   iv. Describe the role of interrupts
   v. Contrast supervisor mode and user mode in an operating system
   vi. Identify Operating Systems resources
   vii. Explain how processes are managed by Operating Systems
   viii. Compare and contrast CPU scheduling algorithms
   ix. Describe the potential problems arising from concurrent execution of processes/threads
   x. Implement solutions for deadlock prevention/avoidance/prevention
   xi. Explain memory hierarchy and cost-performance trade-offs
   xii. Explain the concept of virtual memory and how it is supported by both software and hardware
   xiii. Explain how disks are managed by the Operating System
   xiv. Understand how file systems are implemented
   xv. Understand the need for security mechanisms in Operating Systems
   xvi. Describe basic security mechanisms in Operating Systems

   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs	X		
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences		X	
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

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6. Brief list of topics to be covered

I. Overview of Operating Systems 3 Hours
- A. Historical Perspective, Objectives and Functions
- B. Design issues and inherent trade-offs
- C. Architectures, Current trends and issues

II. Operating Systems Structures 3 Hours
- A. Memory, Storage, Interrupts, Processes
- B. Supervisor/User modes and System calls

III. Process Management 12 Hours
- A. Process scheduling
- B. Interprocess communication
- C. Threads and threading models
- D. CPU Scheduling algorithms
- E. Process Synchronization (Critical Section, Semaphores, Monitors)
- F. Deadlocks (Banker's algorithm)

IV. Memory management 9 Hours
- A. Memory hierarchy, Caching, Swapping
- B. Paging, Segmentation
- C. Virtual Memory (Page Replacement algorithms, thrashing)

V. Device and File Management 9 Hours
- A. Disk Structure, Disk Scheduling
- B. File Systems/File protection/Free space management

VI. Protection 3 Hours
- A. Overview
- B. Users, Policies and Access Control

Tests/Exams/Quizzes 6 Hours

COURSE DESCRIPTION

Course number: CS 360 **Course name: Design and Analysis of Algorithms**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Brenda Miles**
3. ***Textbook: Thomas H. Cormen and Charles E. Leiserson and Ronald L. Rivest and Clifford Stein,*** *Introduction to Algorithms,* ***2nd Edition, McGraw Hill, 2007.***

   a) Other supplemental material

   - Michael T. Goodrich and Roberto Tamassia, *Data Structures & Algorithms in JAVA,* 5th edition, Wiley, 2010.
   - **Anany V. Levitin,** *Introduction to the Design and Analysis of Algorithms,* 2nd Edition, Pearson, 2007.
   - Richard Neapolitan and Kumarss Naimipour, *Foundations of Algorithms,* 4th Edition, Jones & Bartlett, 2011.

4. **Specific Course Information**

   a) Brief description of the content of the course

   Current Catalog Description: Presents a classification of algorithms and provides rigorous treatment of their complexity. It covers the mathematical tools needed to study the space and time complexity of algorithms. It also introduces students to the issues of computability and decidability.

   b) *Prerequisites or co-requisites: A grade of C or higher in* CS 235.

   c) *Whether a required, elective, or selected elective (as per Table 5-1):* **Required**.

5. **Specific goals for the course**

   i. Specific outcomes of instruction

   The student will:

   ii. Understand asymptotic notation, its properties and use in measuring algorithm behavior
   iii. Determine asymptotic expressions for the worst-case execution time and space requirements of algorithms and data structures
   iv. Understand the process of proving algorithm correctness and provide proofs for classical algorithms studied in the course and similar ones
   v. Understand the impact of a data structure on the efficiency of a given algorithms.
   vi. Know the different strategies that are known to be useful in finding efficient algorithms to solve problems and to be able to apply them
   vii. Be able to establish comparisons among different solutions and deciding circumstances when one may be better
   viii. Understand the concepts of computational complexity and its use in categorizing problems in terms of their computational requirements, and to know about different techniques to cope with hard problems
   ix. Be able to use mathematical language and do elementary proofs
   x. Create algorithms to solve problems

(b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution	X		
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences		X	
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

- Summations (1 hours)
- Mathematical Induction (2 hours)
- Set, Functions and Relations (3 hours)
- Categories/design of Algorithms (6 hours)
- Correctness (3 hours)
- Growth of Functions (3 hours)
- Recurrences (3 hours)
- Types of sorting techniques (5 hours)
- Choosing an appropriate data structure (3 hours)

- Elementary Graph Algorithms (5 hours)
- Minimum Spanning Trees (3 hours)
- Introduction to NP–Completeness (3 hours)
- Tests (5 hours)

COURSE DESCRIPTION

Course number: CS 400 **Course name: Computer Science Seminar II**

1. **Credits and Contact Hours: 1**
2. **Instructor's or course coordinator's name: Yenumula Reddy and Nelly Gassant**
3. **Textbook:** No text book

4. **Specific Course Information**
   a) *Brief description of the content of the course*
   Current Catalog Description**:** The course offers students the opportunity to study topics not covered in regular courses. Students choose a topic for research with instructor's approval. Students are required to present their findings in written reports and oral presentations.
   b) *Prerequisites or co-requisites*: **A grade of C or better in CS 235**.
   c) *Whether a required, elective, or selected elective (as per Table 5-1):* Required

5. **Specific goals for the course**
   a) *Specific outcomes of instruction*
      - This course provides opportunity for students to become aware of advances and/or specialized areas in the field of computer science.
      - Understand the legal, ethical, and social issues in the computing field
   b) *Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course*

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices		X	
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities	X		
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	

S10. use current techniques, skills, and tools necessary for computing practice		X	

6. Brief list of topics to be covered

Topics will be selected depend on advances in the field and the interest of the students and faculty.

COURSE DESCRIPTION

Course number: CS 405 **Course name: Software Development (Capstone Course)**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Yenumula Reddy**
3. **Textbook:** No Text Book
   a) Other supplemental material
   Journals related to the project:
   A. IEEE
   B. ACM
   C. Other magazines and journals
   D. Discuss with instructor for appropriate journals and articles

4. **Specific Course Information**

   a) Brief description of the content of the course
   Current Catalog Description**:** The capstone course is an opportunity for students to demonstrate that they have achieved the goals for learning established by the university and the majoring department. The course is designed to assess cognitive, affective and psychomotor learning and to do so in a student-centered and student-directed manner which requires the command, analysis and synthesis of knowledge and skills. The capstone course described here integrates learning from the courses in the major with the courses from the rest of the academic experience. It requires the application of that learning to a project which serves as an instrument of evaluation. The course fosters interdisciplinary partnerships among university departments and helps cultivate industry alliances and cooperation.
   b) Prerequisites or co-requisites: Student must be Senior and CS Major
   c) Whether a required, elective, or selected elective (as per Table 5-1): Required

5. **Specific goals for the course**
   a) Specific outcomes of instruction
   The course emphasizes teamwork in small groups on a substantial project that will be performed for a real customer. Projects are chosen so as to provide interdisciplinary content at large. Projects that involve students from other disciplines are encouraged. Lectures will be directed towards the management of software development projects such as those being carried out by the teams. It is the intent of the course to provide a capstone experience that integrates the material contained in the remainder of the CS curriculum through work on a project that applies this material in another discipline. Each team member will contribute to the design, documentation, and testing phases of the project. This course is a one semester project course. Prerequisites: senior standing in computer science.

   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution	X		
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs	X		
S4. apply design and development principles in the construction of software systems of varying complexity	X		
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities	X		
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

Every student is required to participate in a weekly status reporting between their group and the instructor. This involves making oral presentations ranging from 10 to 20 minutes per person describing their progress in meeting goals and objectives laid out in the project plans. At the end of the term, each group member participates in a 20 minute public presentation/demonstration of their project. Teams also participate in a project post mortem at the end of the project with the instructor to discuss lessons learned. Projects involve developing documentation. A project plan is a major deliverable. Individual students are supposed to maintain a developer log or workbook during the semester with the instructor's signature. Pre-Project Plan will be discussed in the class.

COURSE DESCRIPTION

Course Number: CS 414 **Course Name: Computer Architecture**

1. **Credits and contact Hours: 3**
2. **Instructor's or Course Coordinator's name: Yenumula B Reddy**
3. **Textbook:** Rob Williams, ***Computer Systems Architecture – A Network Approach***, Prentice Hall, 2nd ed, 2006. ISBN: 0321340795.
   a) Other supplemental material
   - David Patterson and John Hennessy, ***Computer Organization and Design -The Hardware/Software Interface***, Morgan Kaufmann Publishers, 1994.
   - Robert J. Baron and Lee Higbie, ***Computer Architecture***, Addison-Wesley Publishing Co., 1995.

4. **Specific Course Information**
   (a) Brief description of the content of the course
   Current Catalog Description: This course covers the functions of the different subsystems in modern computers. It also covers the transfer of data and control information among the subsystems. The course explores the design tradeoffs found in different architectures and the techniques used to speed up program execution.
   (b) *Prerequisites or co-requisites*: A grade of C or better in CS 345
   (c) *Whether a required, elective, or selected elective (as per Table 5-1):* Required
5. **Specific Goals for the course**
   a) Specific outcomes of instruction
   - To provide the basic understanding of the functional basis of computer systems.
   - To introduce instruction sets architectures (ISA).
   - To introduce hardware systems architectures (HSA).
   - To provide an understanding and feel for microchips and microprogramming.
   - To provide an understanding and appreciation for traditional and non-traditional architectures.
   - To introduce the abstraction and encapsulation of fine details at each abstract level of description of a computer system.
   - To exploit the functional basis for interfacing the computer to the real world

   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices		X	
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	

S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

- Introduction: the hardware – software interface (3 Hrs)
- The von Neumann machine (3 Hrs)
- Fundamental units and the Fetch-Execute cycle (3 Hrs
- Building computers from logic: the control unit (3 Hrs)
- Building computers from logic: the ALU (3 Hrs)
- Building computers from logic: the memory (3 Hrs)
- The Intel Pentium CPU (3 Hrs)
- Subroutines (3 Hrs)
- Simple input and output (3 Hrs)
- Filing Systems (3 Hrs)
- Local Area Networks (3 Hrs)
- Tests (5 Hrs)
- Project discussion and presentation (5 Hrs)

COURSE DESCRIPTION

Course number: CS 419 **Course name: Computer Networks**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Yenumula Reddy**
3. **Textbook: Behrouz A. Forouzan**, "*Data Communications and Networking",* Fourth Ed., 2005, ISBN: 0-07-296775-7
   a) Other supplemental material
   - Behrouz A. Forouzan, "*Data Communications and Networking",* 3rd Ed., 2004, ISBN:0-07-2251584-8
   - Natalia Olifer and Victor Olifer, "*Computer Networks", John Wiley & Sons Ltd., 2006, ISBN: 0-470-86982-8*
   - James F. Kurose and Keith W. Ross, "*Computer Networking",3 Ed,* Pearson/Addison Wesley, 2005, ISBN: 0-321-22735-2
   - William Stallings, Data and Computer Communications, 5th Edition, Macmillan Publishing Company, 1997

4. **Specific Course Information**
   a) Brief description of the content of the course
   Current Catalog Description**:** Introduction to the design, analysis and evaluation of Computer Networks. In-depth study of Open Systems and the Open System Interconnection (OSI) reference model. Simulation and analysis of different protocol stacks. Review of existing network architectures. Students are introduced to the tools and techniques for measuring and analyzing the performance of networks.
   b) Prerequisites or co-requisites: **A grade of C or better in CS 345**.
   c) Whether a required, elective, or selected elective (as per Table 5-1): Required

5. **Specific goals for the course**
   a) Specific *outcomes of instruction*
   - Introduces the design and extended computing techniques involving local and remote resources.
   - To provide the basic understanding of the Communications and protocols.
   - To introduce ISO model and Network Topology.
   - To provide an understanding for analog, digital transmission and multiplexing.
   - To provide an understanding of circuit switching, transmission protocols.

   Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices		X	
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system,		X	

process, component, or program to meet desired needs			
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

- Introduction (6 Hours)
  - (Data communications, Networks, Internet, Protocols and Standards)
- Network Models (Layered Tasks, Internet Model, OSI model) (3 Hours)
- Signals (Analog and digital) (3 Hours)
- Digital Transmission (3 Hours)
  - (Line coding, block coding, Sampling, Transmission mode)
- Analog Transmission (Modulation of Digital and Analog signals) (3 Hours)
- Multiplexing (FDM, TDM) (3 Hours)
- Transmission Media (Guided and unguided media) (3 Hours)
- Circuit Switching and Telephone Network (3 Hours)
- Error Detection and Correction (3 Hours)
- Data link control and protocols (3 Hours)

- Cryptography (3 Hours)
- Network Security (3 Hours)
- Project work
- Tests

COURSE DESCRIPTION

Course number: CS 424 **Course name: Advanced Programming Techniques**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Yenumula Reddy**
3. **Textbook:** Python Programming: Third Ed; by Michael Dawson; Course Technology; ISBN: 13: 978-1-4354-5500-9

   a) Other supplemental material

   Exploring Python, Timothy A. Budd, McGraw Hill, Higher Education, 2010, ISBN: 978-0-07-352337-8

   Learning Python, Mark Lutz, O'Reily, ISBN: 978-0-596-51398-6

   Rapid GUI Programming with Python and Qt, Mark Summerfield, Prentice Hall, ISBN: 978-0-13-235418-9

4. **Specific Course Information**

   a) Brief description of the content of the course

   Current Catalog Description: This course covers advanced features of one or more languages, tools, and packages that are used to develop complex applications. Representative applications are client/server programming, systems programming, and real-time programming. The emphasis on each topic may vary among different offerings of the course.

   b) Prerequisites or co-requisites: **Minimum Grade of C in CS 336 and CS 345**

   c) Whether a required, elective, or selected elective (as per Table 5-1): Required

5. **Specific goals for the course**

   a) Specific outcomes of instruction

   Student learns a new programming language that helps to develop special applications including graphics, games, and special interest projects.

   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution	X		
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs	X		
S4. apply design and development principles in the construction of software systems of varying complexity	X		
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues		X	

and responsibilities			
S7. communicate effectively with a range of audiences			X
S8. analyze the local and global impact of computing on individuals, organizations, and society			X
S9. recognize the need for and engage in continuing professional development			X
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

- Exploring Python language, Creating Python Programs (3 Hours)
- Defining Functions, Strings, Lists, Tuples, and Sets (4 Hours)
- Dictionaries, functions, simple games (6 Hours)
- Files (3 Hours)
- Classes (3 hours)
- Functional Programming (3 Hours)
- Object-oriented Programming and Graphics User Interface (4 Hours)
- Scopes, Name Spaces, and Modules (3 Hours)
- Advanced features (sound, animation & games) (3 Hours)
- Case studies (3 Hours)
- Creating Games (3 Hours)

Project – Selected by student and approved by Instructor

COURSE DESCRIPTION

Course number: CS 426 **Course name: Artificial Intelligence**

Credits and Contact Hours: 3

1. **Instructor's or course coordinator's name: Djamel Bouchaffra**
2. **Textbook:** D. Poole, A. Mackworth, and R. Goebel, Computational Intelligence: A Logical Approach, Oxford University Press, January 1998; (ISBN 0195102703)
3. **Specific Course Information**
   a. *Brief description of the content of the course*
   Current Catalog Description: Surveys the breadth of the field of artificial intelligence. It also covers the issues involved in the design and implementation of programs that exhibit intelligent behavior. Topics include knowledge representation, planning, reasoning, control, search, and heuristics.
   b. *Prerequisites or co-requisites:* CS 235
   c. *Whether a required, elective, or selected elective (as per Table 5-1):* Elective
4. **Specific goals for the course**
   a) *Specific outcomes of instruction*
   By the end of the semester, students enrolled in this course should be able to:

   - Define the concept of computational intelligence and the role of agent in different application domains.
   - Embed intelligence in the computer. In other words, the student should be familiar with the knowledge representation and reasoning system in order to communicate with the computer.
   - Cast the problem at hand as a graph searching. Solutions to a problem should be viewed as a set path extracted from a graph.
   - Represent knowledge using different paradigms.
   - Understand the interaction of actions, planning with time and distinguish between a "reactive agent" and "temporal agent".
   - Program a computer in order to take actions in an uncertain environment.
   - Build an algorithm that makes computer "learn".
     - Illustrate the design of situated robots (agents, robotics systems and robot controllers)

   b) *Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course*

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution	X		

S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs	X		
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

5. Brief list of topics to be covered

- Representation & Reasoning System & Using Definite Knowledge (*)
- Searching
- Representing Knowledge
- Beyond Definite Knowledge
- Actions & Planning
- Assumption-based Reasoning
- Using Uncertain knowledge
- Learning
- Building Situated Robots Computational Intelligence & Knowledge
- Tests

COURSE DESCRIPTION

Course number: CS 428 **Course name: Computer Graphics**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Djamel Bouchaffra**
3. **Textbook**: Leen Ammeraal and Kang Zhang, ***Computer Graphics for Java Programmers*, 2nd Edition,** John Wiley, © 2007, ISBN 978-0-470-03160-5
4. **Specific Course Information**
   a. *Brief description of the content of the course*

   Current Catalog Description: Covers the fundamentals of graphics hardware including display devices and specialized processors. It also covers the data structures and algorithms necessary to represent and manipulate images. Students also learn to use graphics packages.

   b. *Prerequisites or co-requisites*: CS 235
   c. *Whether a required, elective, or selected elective (as per Table 5-1):* Elective

5. **Specific goals for the course**
   a) Specific outcomes of instruction

   After completing this course, students will be able to:

   i. Understand the difference between sequential computing and parallel computing
   ii. Understands and writes the simple parallel algorithms
   iii. Explain trade-offs between sequential algorithms and parallel algorithms
   iv. Understands the multi-core and parallel processing
   v. Understand the decomposition Techniques and principles of parallel algorithms
   vi. Sorting and sorting networks

   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences		X	

S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

- Elementary Concepts (Chapter 1)
- Applied Geometry (Chapter 2)
- Geometrical Transformations (Chapter 3)
- Some Classic Algorithms (Chapter 4)
- Class Exercises / Lab on Tuesday
- Some Classic Algorithms (Chapter 4)
- Perspective (Chapter 5)
- Hidden-Line Elimination (Chapter 6)
- Hidden-Face Elimination (Chapter 7)

COURSE DESCRIPTION

Course number: CS 450 **Course name: Parallel Processing**

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Yenumula Reddy**
3. **Textbook:** *An Introduction to Parallel Computing (2nd ed); Addison-Wesley; ISBN 0-201-64865-2*
4. **Specific Course Information**
   a. *Brief description of the content of the course*

   Current Catalog Description: This course covers the different architectures of multiprocessor computer systems. Topics include interconnection networks, memory distribution, performance, and scalability. The course also covers the development of parallel algorithms and their portability across different architectures. Prerequisite: A grade of C or better in CS 235

   b. *Prerequisites or co-requisites:* **CS 235**

   c. *Whether a required, elective, or selected elective (as per Table 5-1):*
   Elective

5. **Specific goals for the course**
   a) *Specific outcomes of instruction*
   Student learns a new programming language that helps to develop special applications including graphics, games, and special interest projects.
   After completing this course, students will be able to:
   i. Understand the difference between sequential computing and parallel computing
   ii. Understands and writes the simple parallel algorithms
   iii. Explain trade-offs between sequential algorithms and parallel algorithms
   iv. Understands the multi-core and parallel processing
   v. Understand the decomposition Techniques and principles of parallel algorithms
   vi. Sorting and sorting networks

   b) *Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course*

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	

S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

I. Introduction
II. Parallel Algorithms concepts and terminology
III. Parallel Computer Memory Architectures
IV. Parallel Programming Models
V. Designing Parallel Programs
VI. Parallel Examples
VII. Principles of parallel Algoriyhm design
    1. Decomposition techniques
    2. Characteristics of tasks and interactions
VIII. Basic communication operations
    1. One-to-all broadcast and all-to-one reduction
    2. All-to-all broadcast and reduction
IX. Sorting
    1. Issues in sorting and parallel computing
    2. Sorting networks
    3. Bubble sort and its varients
    4. Quick sort

COURSE DESCRIPTION

Course number: CS 456 **Course name: Special Topics in Computer Science**

1. **Credits: 3 Contact Hours: 45**
2. **Instructor's or course coordinator's name: Nelly Delessy-Gassant**
3. **Textbook:** Matt Bishop, *Introduction to Computer Security,* Addison-Wesley; 2004; ISBN: 978-0321247445
   a) Other supplemental material
   - Charles P. Pfleeger, *Security in Computing*, Prentice Hall, 4th edition, 2006, ISBN: 978-0132390774
   - William Stallings, *Cryptography and Network Security: Principles and Practice*, Prentice Hall, 5 edition, 2010, ISBN: 978-0136097044
   - Bruce Schneier, *Applied Cryptography: Protocols, Algorithms, and Source Code in C*, Wiley, 2nd edition, 1996, ISBN: 978-0471117094
   - Journals and magazines related to the topic.

4. **Specific Course Information**
   a) Brief description of the content of the course
   Current Catalog Description: Contents of this course vary and are determined by advances in the field of computer science and the interest of the faculty: A grade of C or better in CS 310, CS 320, CS 336, CS 345 and consent of Instructor.
   b) Prerequisites or co-requisites: A grade of C or better in CS 225 and CS 235.
   c) Whether a required, elective, or selected elective (as per Table 5-1): Elective

5. **Specific goals for the course**
   a) Specific outcomes of instruction
   After completing this course, students will be able to:
   i. Understand the increasing need for computer and network security
   ii. Discuss the security objective triad (Confidentiality, Integrity, Availability)
   iii. Explain trade-offs inherent to security defenses; need for security policies and models
   iv. Compare and contract security models relative to their type (discretionary/mandatory), they objective (confidentiality/integrity) and their usability
   v. Compare and contract secrete-key cryptography and public-key cryptography
   vi. Recognize and categorize cryptographic algorithms
   vii. Design a security scheme from basic cryptographic operations
   viii. Describe threats to Operating Systems and Databases
   ix. Describe the mechanisms available in (a) an OS and hardware to control access to resources; (b) database systems to control access to resources
   x. Describe and compare network attack types relative to the risk they pose
   xi. Discuss the strengths and weaknesses associated with network defense mechanisms
   xii. Explain how buffer overflow vulnerabilities can be introduced in programs
   xiii. Identify programming language constructs that can protect from such vulnerabilities
   b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course
   Student outcomes addressed by this course:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices		X	
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities	X		
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society	X		
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

6. Brief list of topics to be covered

I. Overview 3 Hours
- A. Security goals (Confidentiality, Integrity, Availability) and Principles
- B. Human Factors (Usability design, Social engineering, Identity theft and Phishing)

II. Policies and models 6 Hours
- A. High-level Policies
- B. Access control models (Access Matrix, Multilevel Models, Role-based access control)

III. Cryptography 9 Hours
- A. Symmetric Cryptography vs. Asymmetric Cryptography
- B. Using cryptography to implement encryption/integrity/authentication schemes, digital signature and secure digital time-stamping systems

IV. Hardware and Operating Systems Security 3 Hours
- A. Threats/Security mechanisms and controls

V. Database Security 3 Hours
- A. Threats/Inference problem/Security mechanisms and controls

VI. Network Security 9 Hours
- A. Threats (DoS, DDos, message integrity attacks, identity hijacking, exploits, inside attacks, infrastructure attacks)
- B. Defenses (Firewalls, VPNs using IPSec and SSL, IDS, Network Address Translation)
- C. Auditing and logging

VII. Application and programming language security 3 Hours
- A. Buffer overflows and race conditions/Defenses

VIII. Distributed systems security 3 Hours

Viruses, worms and Trojan horses; Web applications security (cross-script scripting, SQL injection); Wireless security

Tests/Exams/Quizzes 6 Hours

COURSE DESCRIPTION

Course number: CS 459 Course name: Special Topics in Database Management Systems

1. **Credits and Contact Hours: 3**
2. **Instructor's or course coordinator's name: Brenda Miles**
3. ***Textbook: Not Required.***

a*) Other supplemental material*

- *Raghu Ramakrishnan & Johannes Gehrke, Database Management Systems, 3rd edition, McGraw Hill, 2003.*
- Zamil Janmohamed*, DB2 SQL PL: Essential Guide for DB2 UDB on Linux, UNIX, Windows, i5/OS and z/OS,* 2nd Edition, IBM Press, 2004.
- David Martineau and Steve Sanya and Kevin Gashyna and Michael Kyprianou, *DB2(R) Universal Database V8 Application Development Certification Guide*, 2nd Edition, IBM Press, 2004.
- Thomas M. Connolly and Carolyn E. Begg, *Database Systems – A Practical Approach to Design, Implementation, and Management*, 4th edition, Addison Wesley, 2005
- Jan Harrington, *Relational Database Design and Implementation*, 3rd edition, Morgan Kaufmann, 2009.
- Jan Harrington, *SQL Clearly Explained*, 3rd edition, Morgan Kaufmann, 2010.

4. **Specific Course Information**
   a) *Brief description of the content of the course*
   Current Catalog Description: Provides course contents that vary and are determined by advances in the field of database management systems and the interest of the faculty.
   b) *Prerequisites or co-requisites: A grade of C or better in CS 310, CS 320, CS 336, and CS 345.*
   c) *Whether a required, elective, or selected elective (as per Table 5-1):* **Elective**.

5. **Specific goals for the course**
   a) Specific outcomes of instruction

The student will:

- Develop a database management system to model a real world enterprise.
- Adhere to design protocol that governs the production of a relational database.
- Work in teams to develop and implement a group project.
- Submit periodic documented audit reports specifying individual and group activities and accomplishments.
- Present/demonstrate his activities and/or achievements via several oral updates scheduled four during the term.
- Demonstrate/present/launch the DBMS project in a seminar session.

b) Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

(a) Student Outcomes

Student outcomes addressed by this course are given in the table below:

Student Outcomes	Strong	Weak	None
S1. apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices	X		
S2. analyze a problem and identify and define the computing requirements appropriate to its solution		X	
S3. design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs		X	
S4. apply design and development principles in the construction of software systems of varying complexity		X	
S5. effectively work on a group/individual project	X		
S6. understand professional, ethical, legal, security, and social issues and responsibilities		X	
S7. communicate effectively with a range of audiences	X		
S8. analyze the local and global impact of computing on individuals, organizations, and society		X	
S9. recognize the need for and engage in continuing professional development		X	
S10. use current techniques, skills, and tools necessary for computing practice	X		

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6. Brief list of topics to be covered

- Architecture of A DBMS (1 hours)
- The relational DBMS model (2 hours)
- Using DB2 DBMS software (8 hours)
- Conceptual, physical and external Schemas (5 Hours)
- Entity-relationship modeling (3 hours)
- Database Consistency (3 hours)
- Structured Query Language (5 hours)
- File Organization and indexes (2 hours)
- Database Security (5 hours)

- Discussions and Presentations of projects
  (9 hours)
- Database Administrator
  (2 hours)

Course Description

Math 273 PROBAB ILITY & STATISTICS I
Spring 2011
CRN: 20928, Math 273-1, Room 282 11-11:50, M-W-F
Lecturer: **Gregory Battle, Ph.D.**
Book: 7th Edition, Elementary Statistics, A Step By Step Approach
Author: Allan G. Bluman

Office: Room 271, Carver Hall Contact: 318-274-2428; professorbattle@gmail.com,
Office Hours: MWF (8 – 9 am) Tue-Thurs (12 – 1 pm)

I. Characterizations of Statistics and Probability
   A. Introduction (some philosophical remarks on statistics)
   B. Descriptive and Inferential Statistics (also Parametric and Nonparametric Statistics)
   C. Variable and Types of Data (Data classification)
   D. Data Collection and Sampling Techniques (really Experimental Design)
   E. Observational and Experimental Studies
   F. Uses and Misuses of Statistics
   G. Computers and Calculators (optional)

II. Frequency Distributions and Graphs
   A. Introduction
   B. Organizing Data
   C. Histograms, Frequency Polygons, and Ogives
   D. Other Types of Graphs (Stem-and-leaf plots, dot plots, pie charts, Pareto charts, scatter plots, time series charts)

III. Data Description
   A. Introduction
   B. Measures of Central Tendency
   C. Measures of Variation (emphasis on Empirical Rule and Tchebyshev's Theorem)
   D. Measures of Position (quartiles, box-and-whisker plot, z-core)
   E. Exploratory Data Analysis

IV. Probability and Counting Rules
   A. Introduction
   B. Probability (types of probability) and Sample Spaces
   C. Addition Rule (mutual exclusive events)
   D. Multiplication Rule and Conditional Probability (independent events)
   E. Counting Rules
   F. Probability and Counting Rules

V. Discrete Probability Distributions
   A. Probability Distributions (discrete and continuous random variables)
   B. Graph of discrete distribution, determining a probability distribution
   C. Mean, Variance, Standard Deviation and Expectation (deal or no deal)
   D. Binomial Distributions (comment on Bernoulli Distribution)
   E. Other Discrete Distributions (Geometric, Hypergeometric, Poisson)

VI. Introduction (Continuous Distributions)
   A. Normal Distributions (shape, probability, area under curve, integral representation, derivatives)
   B. Standard Normal Distribution

C. Finding Probabilities (the Z-table)
D. The Z transformation
E. Central Limit Theorem (statement and theoretical remarks)
F. Normal Approximation to Binomial and Poisson (NASA research)

VII. Other Continuous Distributions (mean, variance, standard deviation, integration)
A. Gamma, Chi-Square, Exponential, Beta, Student-t, F-distribution
B. Moments and moment-generating function
C. Algebra and Calculus of Random Variables (transformations)

VIII. Confidence Interval For Mean & Sample Size (only normal and Student – t)

IX. Hypothesis Testing (Only normal and Student - t)

X. ANOVA, Correlation and Linear Regression (advanced topics)

GRADING POLICY:

HOMEWORK (10%) EXAMINATIONS (90%) Of which FINAL EXAMS counts (30%)

GRADING: 88 -100 A, 78 - 87 B, 68 - 77 C, 55 - 67 D, 0 - 54 F

The following clause is for students participating in any GSU extra curricula activity.

Any student participating in extracurricular activities (example band, football, track, etc. …) must bring signed verification from activity's sponsor/ director on or before the third week of school. It is the responsibility of the student to bring notification of scheduled events that conflict with test or assignment dates. They must be given in advance so that test may be rescheduled. Test or assignments may be rescheduled to an earlier date than the scheduled date, but must be completed prior to the next class period. ***If the student neglects to give early notification a score of Zero (0) will be given for that test or assignments***. **An official excuse for student participation is required to makeup an assignment.**

ADA SPECIAL SERVICE DISABILITY STATEMENT:

Grambling State University complies with the American with Disabilities Act, which requires us to provide reasonable accommodations to students with disabilities. If you need accommodation in this class/setting/facility related to disability, please make an appointment to see me as soon as possible. My office location and conference hours are as set forth at the beginning of this document.

Course Syllabus

Mathematics and Computer Science Department
College of Science and Technology
Grambling State University

Academic Year 2010- 2011

MATH 274 Probability and Statistics – II (CRN # 20865)

Semester:	**SPRING 2011**
Time and Place:	3:00 pm – 4:20 pm MW, CH - 278
Instructor:	Dr. **Bassidy Dembele**
Office:	Carver Hall – 272
Telephone:	274-6178
Conference Hours:	11:00 AM – 12:00 PM (Monday, Wednesday, Friday) 11:00 AM –12:00 PM, 2:00 - 5:00 PM (Tuesday) :20PM –5:20 PM (Monday Wednesday) 00 AM – 10:00 AM (Thursday) Others by Appointment Only
Instructor E-mail:	dembeleb@gram.edu

Course Description: Analysis of Data, Descriptive and inferential statistics, Measures of dispersion, Probability laws and special probability distributions of random variables. Sampling distributions and estimation, Hypothesis testing involving one mean and one proportion, linear correlation and regression. Prerequisite: A grade of C or better in Math 131 or Math 147.

I. Rationale

This course is intended for the students who are interested in Social and Behavioral sciences and Science and Technology disciplines. Examples chosen to illustrate concepts are selected from several fields to relate the material to the students' field of study as well as to show the power of statistical analysis. The focus of this course is descriptive statistics and the underlying theory of inference (hypothesis testing). The concepts of probability presented here form the basis for statistical inference. A computer statistical package "MINITAB" will be used to allow students to perform many detailed statistical calculations.

II. Course Content

A. Review of Probability Theory; Elementary Probability Formulations and Rules
B. Probability Distributions; Expectation; Moments; Moment Generating Function
C. Special Distributions: Gamma; Normal; Student T; F Distribution
D. Standard Error of Mean (MSE); Confidence Interval with Variance known; T-Distribution and Confidence I Intervals; Confidence Intervals for Proportions
E. Confidence Intervals for Variance and Chi-Square; Hypothesis Testing; Hypothesis Test about the Mean; Hypothesis Tests with Variance Unknown

F. Hypothesis Tests of Proportions; Hypothesis Tests for Variance; Confidence Intervals for Difference of Means; Hypothesis Tests for Difference of Means
G. Confidence Intervals and Hypothesis Test I; Confidence Intervals and Hypothesis Test II; Confidence Intervals and Hypothesis Test III; Confidence Intervals and Hypothesis Test IV

V Learning Activities

Learning activities include regular class lectures, laboratory assignments, regular homework problems, and surprise quizzes. Students have opportunities to make use of Instructional DVD available to learn subject material at their own pace. Students will also able to make use of "**Mathzone",** a web-based tutorial and course management system. It provides comprehensive homework exercises, tutorials, and testing keyed to the textbook by section.

VI General Course Requirements

REMINDERS AND STUDY TECHNIQUES:

- Always keep up with the progress of the course. A problem that is ignored will not disappear. It will only mushroom.
- Study before each lecture to know what to look for. Also browse through your notes immediately after the lecture.
- Retention of knowledge is best achieved by revising good notes within 3 hours (but definitely within 12 hours) after the lecture.
- Maintain well-organized and comprehensive notes. Expand them when reading the book and when attending class. I suggest using loose-leaf paper and putting the date on each page.
- Textbook and notes should always be brought to class because they will be referred to during most lectures.
- I will do my best to help you set and achieve your goals. Don't hesitate. Keep in touch.

POLICIES:

- If you have a cellular telephone, then it must be turned off during the entire class period. If it should ring, you will be asked to leave for the remainder of class. Students are not allowed to use the calculator function on a cellular phone or laptop during exams/quizzes. If caught using these items, your test will be invalidated.
- A valid Grambling State university identification (ID) will be required during the examination periods. No ID, No Exam !!!!
- The University honesty policy will be adhered to. Check your student handbook for details.

Obviously, every student in this class is assumed to be a mature, responsible, and capable individual who is preparing himself/herself for a successful professional career. The following points are simply a statement of some of the behavioral traits expected from a responsible professional.

- Class attendance is a privilege and a duty. Everyone is expected to arrive on time and remain for the entire class period unless he/she asks for, and is granted, permission to leave. The class attendance will be taken at the beginning of the class, if you are late more than 5 minutes, then you will be marked absent.

Tardiness is equivalent to an absence unless I excuse it at the end of the class period upon student's request. It will not be excused unless there is a valid proof /reason and it happens only once or twice in entire semester**.**

Attendance record will be maintained.

- An absent student is responsible for finding out and covering the missed work.
- **No make-up tests will be given, unless proper document is obtained and an appointment is made within two (2) days after returning to the class.**
- There will be **absolutely no** opportunity to raise your grade by doing extra credit work. Each student will be graded solely on the basis of criteria mentioned below (exams, quizzes, and homework etc.).
- **Please do not ask for "Extra Credit Work".**
- An "I" grade will only be given when extremely adverse and well-documented circumstances arise at the end of the semester. That definitely doesn't include making up for weak performance during the semester. In particular, the grade that the student had made until getting an "I" will still be factored into computing the final grade after the student has completed the work necessary to change the "I".
- Everyone is expected to study the reading assignments before the lectures and to participate in class discussions in a constructive manner.
- Group discussions/study outside the classroom is strongly encouraged. Cheating, of any kind, is a very serious matter and will result in an "F" grade in the course.
- Of course, all relevant GSU policies and regulations also apply.

LAB ASSIGNMENTS

Each computer laboratory assignment will be explained and assigned in class only.

- Each lab assignment will be given personally only during the class and will be due on assigned day at the beginning of the class period. Start every assignment on the day it is given.
- A late assignment will not be accepted, unless it has been approved.
- Each assignment will be graded for neatness, correctness and style.
- If an assignment has multiple sheets, then staple them together in proper order.
- If there are multiple sheets and they are needed to submit, then sequence them according to the order you were told in class, otherwise as stated in the exercise.
- Do not staple multiple assignments together.
- Disorganized assignments (pages out of order, mislabeled, unreadable etc.) will receive a grade of zero.
- Each assignment must be saved on the Departmental server (Account access will be given in class) for my review ***of your work, otherwise no credit will be given*****.**

VII. Evaluation Process

Methods

Students will be evaluated based on their performance in examinations (including final examination), quizzes, homework, and class participation.

Grading Scale:

HOMEWORK: Homework assignments are extremely important. They can really make the subject material extremely clear and prepare you for tests and quizzes. I will assign the homework daily, however, I will not collect or grade all the assignments I give. I may pickup assignments randomly for grading. If you do your homework assignments regularly and conscientiously you will really benefit from the course a lot. I will able to cover more material in the class and this, in turn, will provide you rewarding experiences in your other courses.

QUIZZES: There may be several unannounced quizzes throughout the semester. **There will be no makeup for the quizzes.** The purpose of the unannounced quizzes is twofold -- to make students come to the class on time and to make students read and understand course material as the course progresses. Quizzes might be given at any time during the class period. If a quiz is given at the beginning of the class period and if ten minutes are allocated for a quiz and a student comes six minutes late to the class, s/he has only 4 minutes to complete the quiz.

EXAMINATIONS: There will be a minimum of two (2) major tests, and cumulative mid-semester and final examinations. None of these scores may be dropped for the lowest score or for any other reason.

No makeup tests will be given unless it is an emergency and a valid proof of absence is provided to me in person. The makeup test should be arranged within two days as soon as a student returns officially to the school. The official excuse is required to take the makeup test. Each student is required to take every examination at scheduled date and time. **No makeup examination will be given unless there is an emergency or arranged in advance**. ***No more than one makeup test per student will be allowed during the semester.***

GRADING: Each Test will be 100 Points, and quiz will be 10 points.
The Mid-Semester and Final examination (comprehensive) will be 100 points.
The points for any of the above assignments may be changed during the semester.
The Final grade will be determined on the basis of total average at the end of the semester using the following scale:

90 -100 A, 80 - 89 B, 70 - 79 C, 60 - 69 D, 0 - 59 F

The following clause is for students participating in any GSU extra curricula activity.
Any student participating in extracurricular activities (example band, football, track, etc. …) must bring signed verification from activity's sponsor/ director on or before the third week of school. It is the responsibility of the student to bring notification of scheduled events that conflict with test or assignment dates. They must be given in advance so that test may be rescheduled. Test or assignments may be rescheduled to an earlier date than the scheduled date, but must be completed prior to the next class period. ***If the student neglects to give early notification a score of Zero (0) will be given for that test or assignments***. **An official excuse for student participation is required to makeup an assignment.**

VII. TEXTBOOK:

Bluman, Allan, *Elementary Statistics: A Step by Step Approach (Seventh Edition)*, McGraw-Hill, 2009 [ISBN 0-07-353497-8]

Student Solutions Manual [ISBN 0-07-333128-7]
MathZone Access Card [ISBN 0-07-338608-1]

VIII. References:

1. Freund, John, *Modern Elementary Statistics,* Prentice Hall, 1979 [519.5 F889m]
2. Holcolmb, Zealure, *Interpreting Basic Statistics,* 1992 [519.5 H725I]
3. Holcolmb, Zealure, *Fundamentals of Descriptive Statistics,* Pyrczak Pub., 1998 [519.53 H725f]
4. Sirkin, R. Mark, *Statistics for the Social Sciences,* Sage Pub., 1995 [519.5 S619s]
5. Jaeger, Richard, *Statistics: A Spectator Sport,* Sage Pub., 1990 [001.422 J022s]
6. Mason, Robert, *Statistics,* Harcourt Brace Jovanovich, 1991, [519.5 M411s]
7. McClave, James, Statistics, Dellen Pub. Co., 1991 [519.5 M126s]
8. Rosenfield, Robert, The McGraw-Hill 36-hour Statistics Course, McGraw-Hill, 1992 [519.502465 R813m]

CONTACT INFORMATION AND RESOLUTION OF CONCERN(S) PROBLEMS(S)

Instructor Dr. Bassidy Dembele Tel:# 274-5524 Office Location CH-272

If you have any concern(s)/problems(s) regarding any aspect of the course, please discuss it **FIRST** with the instructor **AND THEN** with the Dept. Head, Dr. Fred Semwogerere, Tel. No. 274-6177, if necessary.

ACADEMIC DISHONESTY

Students should realize that deception for individual gain is an offense against the entire community. Should students be found to have engaged in academic dishonesty, as a minimum, their grade will be adjusted appropriately, and when warranted, additional administrative sanctions will be recommended?

ADA SPECIAL SERVICE STATEMENT

Assurance Statement
Grambling State University complies with the *Americans with Disabilities Act,* which requires us to provide reasonable accommodations to students with disabilities. Students with disabilities should register with the ADA Student Services Coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. ADA Student Services Center is located in Foster-Johnson Health Center – West Wing (Tel. #: 318-274-3163/3338).

If you need accommodations in this class related to a disability, please make an appointment with me as soon as possible. My office location and hours are: Carver Hall 272.

COURSE DESCRIPTION

Mathematics and Computer Science Department
College of Arts and Sciences

CRN # 20546 MATHS 153 – Calculus I

Semester: Spring 2011 (01-18-2011 to 05-21-2011)
Time and Place: 9:00 – 9:50 am MWF CH 278, 12:00 pm – 12:50 pm W CH 280
Instructor: Dr. Bassidy Dembele
Office: CH 272 E-Mail: dembeleb@gram.edu
Conference Hours:
11:00 AM – 12:00 PM (Monday, Friday) 11:00 AM –12:00 PM, 2:00 - 5:00 PM (Tuesday)
4:20 - 5:20 pm (Monday Wednesday) 9:00 - 11:00 am (Thursday)

Others by Appointment Only

Text: *Calculus (Ninth Edition),* Larson, Hostetler, & Edwards, *Houghton* Mifflin, 2010
ISBN 978:0-547-16702-2
Materials: Textbook, notebook, Calculator

I. Course Description:

Review of inequalities; absolute value; straight lines; conic sections and their graphs; Study of functions; Limits and continuity of functions; Introduction of derivative; Techniques of differentiation; Chain rule; Implicit differentiation; Differentiation of transcendental and inverse functions; Applications of differentiation: concavity; relative extrema; maximum and minimum values of a function; applied maximum and minimum problems. Prerequisite: A grade of C or better in MATH 148.

II. Rationale:

The purpose of this course is to provide basic analytical tools to the students of natural sciences, mathematics, and computer science. Calculus involves equations and formulas. Calculus has enormous impact on our daily life. It has applications in every field of science and contemporary research. All of these applications involve other branches of science and mathematics, but they all use calculus in some essential way. The main objective of this course is to provide all necessary tools and fundamental concepts of differential calculus so that the students can assimilate these ideas to learn advanced topics in calculus and be able to use calculus in all other relevant areas of applications.

III. Competencies:

Upon successful completion of this course, students should be able to:

a) Understand the concept of function and extract the information from the graph of a function. Learn the properties of functions.
b) Learn to generate the graphs of functions using graphing calculators and/or computers (Mathematica).

c) Learn to apply arithmetic operations and find the compositions of functions.

d) Understand the concept of limits using intuitive and rigorous approach. Learn computational techniques to find the limit.
e) Understand the concept of continuity. Apply the continuity properties of trigonometric functions and evaluate some important limits involving these functions.
f) Recognize the relationship between tangent lines and rates of change. Understand the concept of derivative and learn different techniques of differentiation including trigonometric functions. Learn to use the derivative to approximate the functions by simple linear functions.
g) Learn to perform implicit differentiation.
h) Learn to find the derivatives of logarithmic, exponential, and hyperbolic functions.
i) Review the concept of inverse trigonometric and hyperbolic functions and determine their derivatives.
j) Solve applied problems using the concept of derivatives.

IV. Behavioral Objectives:

Upon successful completion of this course, students should be able to:

- Discuss the concept of functions and their properties.
- Recognize and draw the graphs of functions using calculators and/or computers. C. Compare and contrast different methods to evaluate limits.
- Discuss the concept of continuity and learn fundamental concept of continuous curves.
- Analyze the concept of derivative. Learn different techniques of differentiation, and then apply to the problems involving rate of change.
- Discuss trigonometric functions and evaluate their derivatives.
- Discuss logarithms, exponential, and hyperbolic functions and evaluate their derivatives.
- Discuss inverse trigonometric and inverse hyperbolic functions and evaluate their derivatives.
- Discuss various applications of derivatives in the fields of science, business, and engineering.

V. Course Content

a) Preparation for Calculus
   - Graphs and Models
   - Linear Models ad Rates of Change
   - Functions and Their Graphs
   - Fitting Models to Data
b) Limits and Their Properties
   - A Preview of Calculus
   - Finding Limits Graphically and Numerically
   - Evaluating Limits Analytically
   - Continuity and One-Sided Limits
   - Infinite Limits
c) Differentiation

- The Derivative and the Tangent Line Problem
- Basic Differentiation Rules and Rates of Change
- Product and Quotient Rules and Higher-Order Derivatives
- The Chain Rule
- Implicit Differentiation

d) Logarithmic, Exponential, and Other Transcendental Functions
- The Natural Logarithmic Function: Differentiation
- Inverse Functions
- Exponential Functions: Differentiation
- Inverse Trigonometric Functions: Differentiation
- Hyperbolic Functions: Differentiation

e) Applications of Differentiation
- Related Rates
- Extrema on an Interval
- Rolle's Theorem and the Mean Value Theorem
- Increasing and Decreasing Functions and the First Derivative Test
- Concavity and the Second Derivative Test
- Limits at Infinity

VI. Course Format

Learning activities include:

- Regular class lectures
- Classroom Discussion
- Conference hours
- Problem solving sessions
- Homework problems
- Quizzes
- Projects
- Presentations
- Exams

VII. GENERAL EXPECTATION

Obviously, every student in this class is assumed to be a mature, responsible, and capable individual who is preparing himself/herself for a successful professional career in science, mathematics, and engineering areas. The following points are simply a statement of some of the behavioral traits expected from a responsible professional.

- Class attendance is a privilege and a duty. Everyone is expected to arrive on time and remain for the entire class period unless he/she requests for, and is granted, permission to leave. Failure to do so is considered an absence.
- Attendance record will be maintained.
- An absent student is responsible for finding out and covering the missed work.
- No makeup tests will be given, unless informed in advance and proper document is obtained.

- An "I" grade will only be given when extremely adverse and well documented circumstances arise at the end of the semester. That definitely doesn't include making up for weak performance during the semester. In particular, the grade that the student had made until getting an "I" will still be factored into computing the final grade after the student has completed the work necessary to change the "I".
- Cheating [Copying someone else's assignment] and Plagiarism [The practice of taking someone else's work or ideas and passing them off as one's own] are serious ethical matters. Any offense will result in a grade of zero for the assignment and additional actions may be taken.
- CONTACT INFORMATION AND RESOLUTION OF CONCERN(S)
- If you have any concerns/problems regarding any aspect of the course, please discuss it FIRST with the instructor (Leummim Yao) AND THEN with the Dept. Head, Dr. Brett Sims, Tel. No. 274-6177, if necessary.
- Class participation includes but not limited to coming to class on time, being awake in the class, and not distracting other students from listening to the class lecture, and asking relevant questions. Class discussion will be highly encouraged. Please never hesitate to ask the questions.

VII. GSU EXTAR CURRICULAR ACTIVITIES.

Any student participating in extracurricular activities (example band, football, track, etc. must bring signed verification from activity's sponsor/ director on or before third week of school. Notification of scheduled events that conflict with test or assignment dates must be given in advance so that test may be rescheduled. Test or assignments may be rescheduled to an earlier date than the scheduled date, but must be completed prior to the next class period. If the student neglects to give early notification a score of Zero (0) will be given for that test or assignments. An official excuse for student participation is required to makeup an assignment.

EVALUATION PROCESS

I. Methods: Students will be evaluated based on their performance in exams, quizzes, homework, and projects and presentations:

II. A. Quizzes: There will be several unannounced quizzes throughout the semester. There will be no makeup for the quizzes. However, a number of quizzes with the lowest scores will be dropped. The purpose of the unannounced quizzes is twofold -- to make students come to the class on time and to make students read and understand course material as the course progresses. Quizzes might be given at any time during the class period

III. B. Homework: Homework assignments are extremely important. They can really make the subject material extremely clear and prepare you to understand the concepts and also for tests and quizzes. I will assign homework daily, however, I will collect and grade randomly chosen problems every week. If you do your homework assignments regularly and conscientiously you will really benefit from the course a lot. I will able to cover more material in the class and this, in turn, will provide you rewarding experiences in your other courses.

IV. C. Attendance: Attendance will be taken every day. The GSU attendance policy

will be followed (refer to GSU Student Handbook pp18-19). It is the responsibility of the student to make up the work he or she missed irrespective of excused or unexcused absentees. Each student is always welcome to come and seek help from me during my conference hour or any other time mutually convenient.

V. D. Exams. There will be three (3) tests, one (1) comprehensive midterm and one (1) comprehensive final. [the lowest test will be dropped]

VI. E. Projects and Presentations: There will be many (Individual and Group) research projects throughout the semesters with power point presentations. There will be a main research project to be presented at the end the semester.

EVALUATION:

Best 5 in-class quizzes	100	
3 one-hour exams (100 points each)	300	
Final exam	200	
Total	600	

VII. **Grading formula:**

540-600	A
480-539	B
420-479	C
360-419	D
Below 360	F

XI. Special Course Requirements

ADA Special Service Statement

Gambling State University adheres to all applicable federal, state, and local laws with respect to providing reasonable accommodations for students with disabilities. Students with disabilities of any kind should register with the Student Intervention Resources Center (Special Services Facilitator) ASAP. The phone number is 318. 274- 3338. The student must inform his professor of any disabilities in a timely manner so that accommodations can be made.

COURSE DESCRIPTION

Mathematics and Computer Science Department
College of Arts and Sciences
Grambling State University
Course Syllabus

Math 154 – Calculus II CRN # 20547
AY 2010-2011

Semester: **Spring 2011** (1-18-2011 to 05-21-2011)
Time and Place: MWF; 09:00-09:50 a. m., CH 282 and Tuesday; 09:30-10:20 p.m., CH 281
Instructor: Parashu R. Sharma, Ph.D.
Office Location: 113-C Carver Hall, (318) 274-6138
E-mail: sharmapr@gram.edu
Conference Hours: 08:00 a.m.-08:50 a.m. MWF; 10:00 a.m.–12:00 Noon MWF; 9:30-10:30 a.m. R & by appointment

Catalog Course Description: Review of the techniques of differentiation; The Indefinite integral; sigma notation; the definite integral and the fundamental theorem of calculus; Applications of definite integral: the area between two curves; Volumes by disks, washers and cylindrical shells; Length of plane curve; other applications; Integration by the method of substitution; integration of trigonometric, transcendental and inverse functions; Integration by parts; Reduction formula; Integration by partial fractions; Indeterminate forms; Improper integrals; Infinite sequence and series. Prerequisite: A grade of C or better in MATH 153.

II. Rationale
This is the second course in Calculus after the students have achieved thorough background in differential calculus. The objective of this course is to teach students the contents of integral calculus and, therefore, prepare them for different situations where they might need to apply the subject material of Integral Calculus. The course demonstrates many applications of Integral Calculus in science, engineering, and business. This course is crucial for STEM majors and is a prerequisite for Calculus III and Differential Equations.

III. Competencies
Upon successful completion of this course, students should be able to:
A. Completely review and consolidate different techniques of differentiation for a variety of functions.
B. Understand clearly about the importance of the concept of Integration (Anti-derivatives).
C. Understand the origins of integration, systematic development of the concepts, and its unique place in areas of mathematics, science, and engineering.
D. Able to differentiate between indefinite and definite integrals.
E. Understand the fundamental concepts of summations, Riemann Sums, and definite integral.
F. Understand method of substitution to evaluate indefinite and definite integrals.

G. Able to evaluate definite integrals using two different methods.
H. Understand the Fundamental Theorems of Calculus.
I. Understand the Mean-Value Theorem for Integrals.
J. Learn different applications of Definite Integrals: such as Area, Volume, and Length of a curve.
K. Master techniques of integration: Integration by parts, Trigonometric substitution, and Partial Fractions.
L. Understand characteristics and methods of evaluating various indeterminate forms in the studies of limits.
M. Understand difference between proper and improper integrals and methods of evaluation of improper integrals.
N. Comprehend the properties of infinite sequence and series.
O. Understand and apply a variety of tests to find the convergence or divergence of infinite series.
P. Understand the significance of Maclaurin and Taylor polynomials and series, their importance in the area of numerical methods, and applications in scientific and engineering problems.

III. *Behavioral Objectives*

Upon successful completion of this course, students should be able to:

A. Evaluate indefinite integrals by the method of substitution
B. Evaluate definite integrals by the method of substitution
C. Importance of the sigma notation in evaluating definite integrals
D. Evaluate definite integrals by finding the area under the curve.
E. Find the area between the two curves.
F. Find the volume by slicing and cylindrical shell methods.
G. Find the length of curves.
H. Find the area of a surface of revolution.
I. Evaluate integrals using the method of integration by parts.
J. Evaluate integrals using the method of trigonometric substitution.
K. Evaluate integrals of a rational function by using partial functions.
L. Differentiate between various methods to evaluate limits with indeterminate forms.
M. Establish correlation between different techniques of evaluating proper and improper integrals.
N. Recognize different types of infinite series and choose relevant test that determines the convergence and divergence of infinite series.
O. Recognize the importance of Taylor and Maclaurin series in numerical analysis.

IV. *Course Content*

A. Review of the techniques of differentiation (1 hour)

B. Integration (11 hours)

1. Importance of anti-differentiation or integration – A brief description of Differential Equations
2. Sigma Notation (Summation)
3. The Definite Integral, Area, and Riemann sums

4. Properties of Definite Integrals
5. The Fundamental Theorem of Calculus
6. The Mean-Value Theorem for Integrals and Average
7. Evaluating Definite and Indefinite Integrals by Substitution
8. Exponential and Logarithmic Functions: Integration
9. Inverse Trigonometric Functions: Integration
10. Hyperbolic and Inverse Hyperbolic Functions: Integration

C. Applications of the Definite Integral (4 hours)

1. Area under a Curve
2. Area between two Curves
3. Volumes by Slicing; Disks and Washers
4. Volumes by Cylindrical Shells
5. Length of a Plane Curve
6. Area of a Surface of Revolution
7. An Introduction of the First Order Differential Equations and their Applications

D. Techniques of Integration (10 hours)

1. An overview of Integration Methods
2. Integration by Parts
3. Inverse Trigonometric Functions
4. Trigonometric Integrals
5. Trigonometric Substitution
6. Integrating Rational Functions by Partial Fractions

E. Indeterminate Forms and Improper Integrals: (3 hours)

1. Indeterminate Forms of Type 0/0 and ∞ / ∞
2. Other Indeterminate Forms (0^0 , ∞^0 , 1^∞ , $\infty - \infty$, $0 \cdot \infty$)
3. Improper Integrals: Infinite Limits
4. Improper Integrals: Infinite Integrands

F. Infinite Series: (6 hours)

1. Properties of Sequences
2. Infinite Series - Convergence and Divergence
3. Convergence Tests
4. Alternating Series; Conditional Convergence
5. Power Series
6. Maclaurin and Taylor Series

G. Review and Tests (5 hours)

V Learning Activities

Learning activities include regular class lectures, class room discussions, peer group problem solving sessions, regular homework problems, writing exercises, surprise quizzes, and regular tests. Periodic evaluations are provided to help promote mastery of concepts and skills. Students have opportunities to make use of Instructional DVDs available to learn

subject material at their own pace. It provides comprehensive homework exercises, tutorials, and testing keyed to the textbook by section.

VI Special Course Requirements

A. Prerequisites by Topic:

1. Properties of trigonometric, exponential, logarithmic, hyperbolic, and inverse functions
2. Concepts of limits
3. Partial fractions
4. Elementary knowledge of plane and analytic geometry.
5. Techniques of differentiation
6. Students enrolled in this course must have a grade of "C" or better in Calculus I (Math 153).
7. The textbook is required for this course. Please bring your textbook to class every day.

B. General Course Regulations/Suggestions:

- All relevant GSU policies and regulations shall apply.
- An "I" grade will only be given when extremely adverse and well-documented circumstances arise at the end of semester. That definitely does not include making up for weak performance during the semester. In particular, the grade that the student had made until getting an "I" will still be included into computing the final grade after a student has completed the work necessary to alter the "I" grade.
- Plagiarism will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz, exam, or assignment in which cheating, fraud, or mis-representation is found. Two quite similar pages will be treated as an act of plagiarism for both the parties.
- Class participation includes but not limited to coming to class on time, being awake in the class, and not distracting other students from listening to the class lecture, and asking relevant questions. Class discussion will be highly encouraged. Please never hesitate to ask the questions.
- This is probably one of the most important courses you will take at an undergraduate level. The course provides you a foundation for all mathematics, sciences (including Biological), and engineering courses. The importance of the course cannot be over emphasized.
- The course requires lot of hard work and additional reading. Students should carefully consider this in planning their other courses and activities. Attendance in all the classes is vitally important since class lectures have a close link with each other.
- Always keep up with the class. There is lot of material to be covered. It is important for us to reach to the last phase of this course because this information is very essential for your future courses.
- It will be advisable to formulate study groups and meet at a designated place consistently during evening hours or weekends to complete the related work on the same day.
- Cell phone in the class room is a big distraction. Therefore, please turn off your phone and do not respond even to vibrating mode during the entire class period. Keep your phone inside your bag and do not answer your cell phone, during the class period, inside or outside the classroom. It is generally very disturbing when students move in

and out of the classroom to answer the cell phone or for any other reason. Please prepare to sit in the class for 50 minutes unless there is an extreme need.

IX. Evaluation Process

Methods

Students will be evaluated based on their performance in examinations (including comprehensive mid-term test and final examination), quizzes, homework, and class participation. The details are as follows:

Examinations: There will be four major tests (including comprehensive mid-term) and a cumulative final examination. None of the tests will be dropped for the lowest score or for any other reason. The schedule for **Spring 2011** is as follows:

Test #	**Duration**	**Date & Day**	**Material**
Test #1	50 Minutes	2/11/ 11, Friday	1/18/11 to 2/09/11
Test #2 (Mid Term)	55 Minutes	3/04/11, Friday	Comprehensive
Test #3	50 Minutes	4/08/11, Friday	3/07/11 to 4/06/11
Test #4	50 Minutes	5/04/11, Wednesday	4/11/11 to 5/03/11
Final Exam (Grad Seniors)	2 hours Time: TBA	TBA	Comprehensive
Final Exam (All other students)	2 hours Time: 10:30 a.m.-12:30 p.m.	5/11/11, Wednesday	Comprehensive

All students are required to take every test as scheduled above. **No makeup tests will be given unless arranged for in advance.** The makeup test should be arranged within a week since the original date scheduled. The official excuse is required for all the students to take a makeup test. No more than one makeup test per student will be allowed during the semester. **Since the examination schedule, for the entire semester, has been provided right on the first day of the beginning of classes, students are advised to schedule all their other activities keeping this schedule in mind. No early final exam will be given. Students will also be required to bring their University Identity Card when they take any test. If you will not able to present your Identity Card you will not be allowed to take the test.**

The following clause is for students participating in any GSU extra curricula activity.

Any student participating in extracurricular activities (for example band, football, track, etc. …) must bring the official activity schedule for the **Spring 2011** semester on or before the **January 31, 2011**. Test or assignments may be rescheduled to a mutually convenient date than the above scheduled dates, but permission from the instructor must be sought in advance. If the student neglects to give a prior notification, a score of Zero (0) will be given for that test or assignment. **An official excuse for student participation is required to make up a test or an assignment.**

Quizzes: There will be many (about 10-15) unannounced quizzes throughout the semester. There will be no makeup for the quizzes. However, one quiz with the lowest score will be dropped. The purpose of the unannounced quizzes is twofold -- to make students come to the class on time and to make students read and understand course material as the course progresses. Quizzes might be given at any time during the class period. If a quiz is given at the beginning of the class period and if ten minutes are allocated for a quiz and a student comes six minutes late to the class, s/he has only 4 minutes to complete the quiz.

Assignments: Homework assignments are extremely important. They can really make the subject material extremely clear and prepare you for tests and quizzes. I will assign the homework daily, however, I will not collect or grade all the assignments I give. I will pickup assignments randomly for grading. If you do your homework assignments regularly and conscientiously you will really benefit from the course a lot. I will able to cover more material in the class and this, in turn, will provide you rewarding experiences.

Attendance: Attendance will be taken every day. The GSU attendance policy will be followed (refer to GSU Student Handbook). It is the responsibility of the student to make up the work he or she missed irrespective of excused or unexcused absentees. The student is always welcome to come and take help from me in my conference hour or any other time mutually convenient.

Grading Scale:

Each test will be worth 100 Points, each quiz will be worth 5 to 10 points, and each home work (collected) will be worth 10 to 20 points. The Mid-semester and Final examinations (both comprehensive) will be worth 200 points each. Rather than grading on a strict percentage basis, I use the following method for determining your grade. At the end of the course, I make a total of all points you received, calculate the percentage points, and make a distribution of this percentage for all the members of this class, from the highest to lowest. Next, I look for a "Natural Break" in the scores and award a letter grade. The philosophy I use is that similar scores will receive the same grade. Generally the distribution is as follows:

85.0% & above	A
71.0-84.0%	B
55.0-70.0%	C
40.0-54.0%	D
Below 40%	F

VIII. References

A. Textbook

Larson, Hostetler, Edwards; Calculus, Houghton Mifflin; Ninth Edition, 2010

B. Additional References:

James Stewart, Calculus, Brooks/Cole, Sixth Edition, 2008
Anton, Bivens, and Davis Calculus, John Wiley & Sons, Eighth Edition; 2005
Smith and Minton, Calculus: Concepts & Connections, McGraw Hill, 2006

Assurance Statement

Grambling State University adheres to all applicable Federal, State, Local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. Students with disabilities should register with the ADA Student Services Coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. ADA Student Services Center is located in Counseling Center (Tel. #: 318-274-3338).

If you need accommodations in this class related to a disability, please make an appointment with me as soon as possible. My office location and hours are: Carver Hall 113-C; 08:00 a.m.-08:50 a.m. MWF, 10:00 a.m. – 12:00 Noon MWF, and 9:30-10:30 a.m. Thursday.

WISHING YOU A VERY HAPPY, REWARDING, AND SUCCESSFUL SPRING 2011

PLEASE DO NOT HESITATE FOR ANY HELP YOU NEED FOR THE COURSE DURING ENTIRE SEMESTER AND EVEN AFTERWARDS WHEN YOU USE CALCULUS IN YOUR OTHER COURSES. I HAVE A STRONG DESIRE TO TEACH AND MAKE YOU UNDERSTAND THE MATERIAL IN THIS COURSE. TOGETHER, WE CAN MAKE THINGS EASY AND ENJOYABLE.

COURSE DESCRIPTION

GRAMBLING STATE UNIVERSITY
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

CALCULUS III CRN# 20227 **MATH 201 – 1**

Semester: SPRING 2011
Time and Place: M W 1:30 p m - 2:50 pm W 3:00 pm – 3:50 pm
280 Carver Hall

Instructor: Leummim Yao
Office: 269 Carver Hall
Telephone: (318) 274-3743
E-mail: yaol@gram.edu
Conference Hours: M 12:00 p m - 1:30 p m & 3:00 pm – 4:30 pm
T 2:30 p m - 4:00 p m W
12:00 p m - 1:30 p m
R 10:00 am – 1:00 pm F
10:00 a m – 11:00 a m
Also by Appointment

Text: *Calculus,* Larson Edwards, 9th edition, published by Books/Cole , Cengage Learning

I. Course Description:
A course in multivariable calculus and covers polar coordinates and parametric equations; vector; functions of multi-variables; limits and continuity of multivariable functions; partial derivatives; differentiability and chain rules for functions of two variable; directional derivatives; normal and tangent lines; planes to surfaces; multiple integrals in polar and Cartesian coordinates ; line and surface integrals; Green's, divergence, and Stokes 's theorems. Prerequisite: A grade of "C" or higher in Math 154.
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II Course Content

A. VECTORS AND GEOMETRIY IN SPACE
- Vectors and component from of vectors in the plane; vector operations
- Vectors in space and space coordinates
- Dot product and cross product of vectors
- Geometric properties of the cross-product
- Lines and planes in space; Distance between point, planes and lines
- Cylindrical and spherical coordinates

B. VECTOR-VALUED FUNCTIONS
- Space curves and vector-valued functions
- Limits and continuity
- Differentiation and integration of vector-valued functions
- Velocity and acceleration
- Tangent vectors and normal vectors

- Arc length and curvature

C. FUNCTIONS OF SEVERAL VARIABLES
- Limits and continuity
- Partial Derivatives and Differentials
- Chain rules
- Directional Derivatives and Gradients
- Tangent planes and normal lines
- Extrema and applications

D. MULTIPLE INTEGRATION
- Iterated integrals and area in the plane
- Double integrals and volume
- Change of variables; Polar coordinates
- Center of mass and moments of inertia
- Surface areas
- Triple integral and applications

III. Course Format

Learning activities include:
- Regular class lectures
- Classroom Discussion
- Conference hours
- Homework problems
- Projects
- Presentations
- Exams

IV. GENERAL EXPECTATION

Obviously, every student in this class is assumed to be a mature, responsible, and capable individual who is preparing himself/herself for a successful professional career in science, mathematics, and engineering areas. The following points are simply a statement of some of the behavioral traits expected from a responsible professional.
- Class attendance is a privilege and a duty. Everyone is expected to arrive on time and remain for the entire class period unless he/she requests for, and is granted, permission to leave. Failure to do so is considered an absence.
- Attendance record will be maintained.
- An absent student is responsible for finding out and covering the missed work.
- No makeup tests will be given, unless informed in advance and proper document is obtained.
- An "I" grade will only be given when extremely adverse and well documented circumstances arise at the end of the semester. That definitely doesn't include making up for weak performance during the semester. In particular, the grade that the student had made until getting an "I" will still be factored into computing the final grade after the student has completed the work necessary to change the "I".
- Cheating [Copying someone else's assignment] and Plagiarism [The practice of taking someone else's work or ideas and passing them off as one's own] are serious ethical matters. Any offense will result in a grade of zero for the assignment and additional actions may be taken.

- CONTACT INFORMATION AND RESOLUTION OF CONCERN(S)
- If you have any concerns/problems regarding any aspect of the course, please discuss it FIRST with the instructor (Leummim Yao) AND THEN with the Dept. Head, Dr. Semwogere, Tel. No. 274-6177, if necessary.
- Class participation includes but not limited to coming to class on time, being awake in the class, and not distracting other students from listening to the class lecture, and asking relevant questions. Class discussion will be highly encouraged. Please never hesitate to ask the questions.

V. GSU EXTAR CURRICULAR ACTIVITIES.

Any student participating in extracurricular activities (example band, football, track, etc. …) must bring signed verification from activity's sponsor/ director on or before third week of school. Notification of scheduled events that conflict with test or assignment dates must be given in advance so that test may be rescheduled. Test or assignments may be rescheduled to an earlier date than the scheduled date, but must be completed prior to the next class period. If the student neglects to give early notification a score of Zero (0) will be given for that test or assignments. An official excuse for student participation is required to makeup an assignment.

VI. EVALUATION PROCESS

A. Methods: Students will be evaluated based on their performance in exams, homework, and projects and presentations:

B. B. Homework: Homework assignments are extremely important. They can really make the subject material extremely clear and prepare you to understand the concepts and also for tests. I will assign homework and grade them every other week.

C. C. Attendance: Attendance will be taken every day. The GSU attendance policy will be followed (refer to GSU Student Handbook pp18-19). It is the responsibility of the student to make up the work he or she missed irrespective of excused or unexcused absentees. Each student is always welcome to come and seek help from me during my conference hour or any other time mutually convenient.

D. D. Exams. There will three (3) tests, one (1) comprehensive midterm and one (1) comprehensive final.

E. E. Projects and Presentations: There will be student research project presentations.

VII EXAMINATION DATES

TEST 1 (to be announced)
TEST 2 (to be announced)
TEST 3 (to be announced)

MIDERM WEDNESDAY, MARCH 2, 2011

FINAL EXAM MONDAY, MAY 9, 2011 - 8:00 am – 10:00 am

VIII GRADE DISTRIBUTION

- Homework 20 %
- Projects 20%
- Test 30 %
- Midterm 10 %

- Final Exam 20 **%**

IX GRADE SCALING

- A: 90 - 100 EXCELLENT B: 80 - 89 GOOD
- C: 70 - 79 FAIR
  D: 60 - 69 MEDIOCRE
  F: Below 60 UNACCEPTABLE

X. Special Course Requirements

ADA Special Service Statement

Gambling State University adheres to all applicable federal, state, and local laws with respect to providing reasonable accommodations for students with disabilities. Students with disabilities of any kind should register with the Student Intervention Resources Center (Special Services Facilitator) ASAP. The phone number is 318. 274- 3338. The student must inform his professor of any disabilities in a timely manner so that accommodations can be made.

Course Syllabus

Mathematics and Computer Science Department
College of Science and Technology
Grambling State University

MATH 309– Linear Algebra **CRN: 20228**

Semester: SPRING 2011
Time and Place: M W F 11:00 a m - 11:50 am 282 Carver Hall
Instructor: Leummim Yao Office: 269 Carver Hall
Telephone: (318) 274-3743 E-mail: yaol@gram.edu

Conference Hours: M 12:00 p m - 1:30 p m & 3:00 pm – 4:30 pm
T 2:30 p m - 4:00 p m
W 12:00 p m - 1:30 p m
R 10:00 am – 1:00 pm
F 10:00 a m – 11:00 a m
Also by Appointment

Textbook: Elementary Linear algebra by Howard Anton and Chris Rorres, 10th edition, Wiley

Course Description: The analysis of linear equations and their solutions. To investigate the algebra and geometry of finite-dimensional vector spaces, linear transformations, their corresponding matrix relative to some basis, determinants, the algebra of matrices, some concepts of eigenvalues, eigenvectors and quadratic forms. Prerequisite: A grade of C or better in MATH 154.

I Rationale

This course provides the student with his (her) first experience in axiomatic mathematics, while staying in touch with the computational aspects of the subject. The mere ability to manipulate matrices is no longer adequate. This course affords an excellent opportunity to develop a capability for handling abstract concepts.

II Competencies

Upon successful completion of this course students should be able to:

a) Solve linear systems of equations.
b) Use matrix methods in solving linear systems.
c) Employ the definition of vector spaces.
d) Illustrate the concepts of orthogonality as it relates to the Gram-Schmidt algorithm.
e) Demonstrate the use of linear transformations.
f) Use eigenvalues and eigenvectors in related applications.

III Behavior Objectives

Upon successful completion of this course students should be able to:

- Perform determinant,
- Perform matrix operations
- Calculate inverses
- Diagonalized matrices
- Perform operations dealing with vector spaces
- Find orthonormal bases

IV Course Content

- Determinants
- System of Linear Equations
- Matrices and Matrices Operations
- Intuitive Vector Spaces and subspaces (Vectors in 2-space and 3-space)
- Vectors spaces in n-space (General)
- Inner products
- Linear Transformations
- Eigenvalues and Eigenvectors
- Diagonalization
- Quadratic Forms

V Learning Activities

Learning activities include regular class lectures, discussion during the class, conference hours, regular homework problems, surprise quizzes, Projects and examinations

General Requirements

Obviously, every student in this class is assumed to be a mature, responsible, and capable individual who is preparing himself/herself for a successful professional career in science, mathematics, and engineering areas. The following points are simply a statement of some of the behavioral traits expected from a responsible professional.

1. Class attendance is a privilege and a duty. Everyone is expected to arrive on time and remain for the entire class period unless he/she requests for, and is granted, permission to leave. Failure to do so is considered an absence.
2. Attendance record will be maintained.
3. An absent student is responsible for finding out and covering the missed work.
4. No makeup tests will be given, unless informed in advance and proper document is obtained.
5. An "I" grade will only be given when extremely adverse and well documented circumstances arise at the end of the semester. That definitely doesn't include making up for weak performance during the semester. In particular, the grade that the student had made until getting an "I" will still be factored into computing the final grade after the student has completed the work necessary to change the "I".
6. Of course, all relevant GSU policies and regulations also apply.

VI Evaluation Process

A. Methods: Students will be evaluated based on their performance in exams, quizzes, homework, and projects and presentations

B. Homework: Homework assignments are extremely important. They can really make the subject material extremely clear and prepare you to understand the concepts and also for tests and quizzes. I will assign homework daily, however, I will collect and grade **every week.** If you do your homework assignments regularly and conscientiously you will really benefit from the course a lot. I will able to cover more material in the class and this, in turn, will provide you rewarding experiences in your other courses.

C. Attendance: Attendance will be taken every day. The GSU attendance policy will be followed (refer to GSU Student Handbook pp18-19). It is the responsibility of the student to make up the work he or she missed irrespective of excused or unexcused absentees. Each student is always welcome to come and seek help from me during my conference hour or any other time mutually convenient.

D. There will be MATLAB assignments

E. Exams. There will be one (1) comprehensive midterm and one (1) comprehensive final.

F. Projects: There will be many (Individual and Group) research projects throughout the semesters. There will be a main research project to be presented at the end the semester.

G: **Grade distribution**

Lab & Homework	20 %		
Test (2)		20 %	
Miterm		10%	
Projects			30 %
Final			20%

H. EXAMINATION DATES

Test 1	
MIDERM	FRIDAY, MARCH 4, 2011
Test 2	
FINAL EXAM	MONDAY, MAY 9, 2011 - 1:00 pm – 3:00 pm

VIII Grading scale

A: 100 - 90 B: 89 - 79 C: 78 - 68
D: 67 - 57 F: 56 - below

IX ADA Policy

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Facilitator) ASAP. The phone number is 318. 274- 3338. The student must inform his professor of any disabilities in a timely manner so that accommodations can be made.

Course Syllabus

Department of Mathematics and Computer Science
College of Arts and Sciences
Grambling State University

MATH 421– Numerical Methods I CRN # 20232

Semester: Spring 2011 (01-18-2011 to 05-21-2011)
Time and Place: TR, 8:00-09:20 a. m.; 278 Carver Hall
Instructor: Parashu R. Sharma, Ph.D.
E-Mail: sharmapr@gram.edu
Office: 113-C Carver Hall, (318) 274-6138
Conference Hours: 08:00-08:50 a. m. MWF; 10:00 a.m.-12:00 noon MWF; 9:30-10:20 a.m. R & by appointment

Catalog Course Description: Roots of polynomials and transcendental equations; Theory of polynomial equations; Roots of polynomials using synthetic division and deflating polynomials; Computations of functions using Taylor series; Interpolation and Curve fitting; Numerical differentiation and integration; derivatives from difference tables; Trapezoid rule and Simpson's rules; Introduction to solving set of equations; matrix notation; Gauss and Gauss-Jordan methods. Prerequisite: A grade of C or better in MATH 201 and knowledge of a programming language.

IV. Rationale

The purpose of this course is to provide numerical tools to the students of computer science and mathematics. The course deals with elementary numerical analysis and methods. It is a very vital course as it incorporates many important concepts in this area. The course enhances students' capabilities of analysis and applications of calculus, linear algebra, and programming to Numerical analysis. It is important to provide mathematical background behind various numerical methods used. The course also includes how numerical methods are used to solve scientific and engineering problems in the absence of exact analytical solutions. The course will help in developing Algorithms and subsequently Computer Programs to solve problems related to the subject material described below.

V. Competencies

Upon successful completion of this course students should be able to:

a) Achieve competency in finding roots of algebraic and transcendental equations based on first-degree equation methods (Bisection, linear interpolation, Secant, and Newton-Raphson) and second-degree equation methods (Mueller, Newton, Chebyshev, and Bairstow).
b) Understand the detailed mathematical analysis associated with the above mentioned methods.
c) Understand clearly different types of errors involved in these numerical methods.

d) Understand the theory of polynomial equations; effectively apply algorithms for synthetic division and associated idea of deflated polynomials to find roots of higher order polynomials.
e) Acquire competency in using different interpolation and curve fitting techniques.
f) Acquire competency in different techniques of numerical integration and differentiation.
g) Acquire competency in developing algorithms, which can be used for developing computer programs, for different numerical methods mentioned above.
h) Achieve competency in using Taylor and Maclaurin series for doing variety of numerical computations including differentiation and integration.
i) Understand basic concepts of numerically solving system of linear equations.

III. Behavior Objectives

Upon successful completion of this course students should be able to:

a. Understand the importance of numerical methods in the absence of exact solutions for many scientific, engineering, and mathematical problems.
b. Understand the importance of determining roots of algebraic and transcendental equations, compare and contrast different numerical methods and apply these numerical methods to obtain roots in diversified scientific and engineering problems.
c. Understand the behavior of different numerical methods when they are used to solve the problems using hand held calculators and computers. Understand clearly correspondence between them.
d. Recognize the importance of Taylor and Maclaurin series to express any given function as a polynomial about a given point. Understand the significance of these series in numerical analysis.
e. Understand the importance of different interpolation and curve fitting methods in applied scientific and engineering problems.
f. Understand that numerical methods are equal partner, as analytical methods, in solving applied scientific and engineering problems.

IV. Course Content

1. Introduction to Numerical methods. (1 class period)
2. Roots of algebraic and transcendental equations; incremental search method, Iterative methods based on first degree equation (Bisection method, method of linear interpolation, Secant method, Newton-Raphson Method), Fixed-Point Iteration method, Iterative methods based on second degree equation (Methods of Muller, Newton, Chebyshev and Bairstow), Theory of polynomial equations, Roots of polynomials using synthetic division and deflating polynomials, Newton's and Bairstow's methods for polynomials. (7 class hours)
3. Taylor and Maclaurin series, Taylor's formula with remainder, computations using Taylor series, Differentiation and Integration using Taylor series. (4 class periods)
4. Interpolation and Curve fitting, Lagrange linear and higher order interpolation, Newton's divided difference interpolation, method of least squares, curve fitting with exponential functions, cubic splines. (4 class periods)
5. Numerical differentiation and integration; derivatives from difference tables, the Trapezoid rule and Simpson's rules. (3 class periods)

6. Introduction to solving set of linear equations; matrix notation, Gauss and Gauss-Jordan methods. (2 class periods)
7. Introduction to the solution of ordinary differential equations. (2 class periods)
8. Review and Tests. (5 class periods)

V Learning Activities

Learning activities include regular class lectures, classroom group discussions, classroom presentations, regular homework projects, development of algorithms and computer programs for different numerical methods, and surprise quizzes. Make use of Mathematica/Matlab software to find numerical solutions.

VI Special Course Requirements

A. Prerequisites by Topic:

1. Basic properties of functions
2. Theory of polynomials and synthetic division
3. Algorithm writing skills
4. Fluency in any programming language
5. Techniques of differentiation and integration
6. Taylor and Maclaurin polynomials
7. Properties of matrices and determinants
8. Solution of simple first order differential equations.

B. General Course Regulations/Suggestions:

- All relevant GSU policies and regulations shall apply.
- An "I" grade will only be given when extremely adverse and well-documented circumstances arise at the end of semester. That definitely does not include making up for weak performance during the semester. In particular, the grade that the student had made until getting an "I" will still be included into computing the final grade after the student has completed the work necessary to alter the "I" grade.
- Plagiarism will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz, exam, or assignment in which cheating, fraud, or mis-representation is found. Two similar pages will be treated as an act of plagiarism for both the parties **and both parties will be panelized for plagiarism**.
- There will be **absolutely no** opportunity to raise your grade by doing extra credit work. The students will be graded solely on the basis of criteria mentioned below (exams, quizzes, class room participation, and homework). Please do not ask for "Extra Credit Work".
- Class participation includes but not limited to coming to class on time, being awake in the class, and not distracting other students from listening to the class lecture, asking relevant questions, participating in group discussions, and class room presentations on given topic/s. Class discussion will be highly encouraged. Please never hesitate to ask the questions.
- The course requires lot of hard work and additional reading. Students should carefully consider this in planning their other courses and activities. Attendance in all the classes is vitally important since class lectures have a close link with each other.

- **Cell phone in the class room is a big distraction. Therefore, please turn off your phone and do not respond to vibrating mode during the entire class period. Keep your phone inside your bag and do not answer your cell phone, during the class period, inside or outside the classroom.**

X. Evaluation Process

A. Methods

Students will be evaluated based on their performance in examinations (including comprehensive mid-term and final examination), quizzes, homework, and class participation. The details are as follows:

Examinations: There will be four major tests (including comprehensive mid-term) and a cumulative final examination. None of the exams will be dropped for the lowest score or for any other reason. The schedule for **Spring 2011** semester is:

Test #	**Duration**	**Date & Day**	**Material**
Test #1	80 Minutes	2/08/11, Tuesday	1/18/11 to 2/03/11
Test #2 (Mid Term)	80 Minutes	3/03/11, Thursday	Comprehensive
Test #3	80 Minutes	4/07/11, Thursday	3/08/11 to 4/05/11
Test #4	80 Minutes	5/03/11, Tuesday	4/12/11 to 4/28/11
Final Exam (Grad Seniors)	2 hours Time: TBA	TBA	Comprehensive
Final Exam (All other students)	2 hours 08:00 a.m.-10:00 a.m.	5/12/11, Thursday	Comprehensive

All students are required to take every test as scheduled above. **No makeup tests will be given unless arranged for in advance.** The makeup test should be arranged within a week since the original date scheduled. The official excuse is required for all the students to take a makeup test. No more than one makeup test per student will be allowed during the semester. **Since the examination schedule, for the entire semester, has been provided right on the first day of the beginning of classes, students are advised to schedule all their other activities keeping this schedule in mind. No early final examination will be given. Students will also be required to bring their University Identity Card when they take any test. If you will not able to present your Identity Card you will not be allowed to take the test.**

The following clause is for students participating in any GSU extra curricula activity.

Any student participating in extracurricular activities (example band, football, track, etc. …) must bring the official activity schedule for the Spring 2011 semester on or before the **February 03, 2011**. Test or assignments may be rescheduled to a mutually convenient date, but permission from the instructor must be sought in advance. If the student neglects to give a prior notification, a score of Zero (0) will be given for that test or assignment. **An official excuse for student participation is required to make up a test or an assignment.**

Quizzes: There will be several unannounced quizzes throughout the semester. There will be no makeup for any of the quizzes. However, one quiz with the lowest grade will be dropped. The purpose of the unannounced quizzes is twofold -- to make students come to the class on time and to make students read and understand course material as the course progresses. Quizzes might be given at any time during the class period. If a quiz is given at the beginning of the class period and if ten minutes are allocated for a quiz and a student comes five minutes late to the class, s/he has only 5 minutes to complete the quiz.

Assignments: Homework projects are extremely important. They can really make the subject material extremely clear and also prepare you for tests and quizzes. In addition, they will carry a good portion of the total grade. During the whole semester, I am planning to assign about 12 homework projects. This will also include some long projects that will require programming skills. If you do your homework projects regularly and conscientiously you will really benefit from the course a lot. I will able to cover more material in the class and this, in turn, will provide you rewarding experiences in your other courses. These assignments take time, therefore, I advise you to start working on them the day they are assigned**.** Please submit your assignments on standard 8.5 x 11 inch white paper. Leave 1 inch margin on all four sides. **No late assignments will be accepted.**

A. Grading Scale:

Each test will be worth 100 Points and each quiz will be worth 5 or10 points. The points for the Homework projects will range from 30 to 100. The Mid-semester, Final examinations (both comprehensive), and homework **projects** (combined) will be worth 200 points each. Rather than grading on a strict percentage basis, I use the following method for determining your grade. At the end of the course, I total all of your points, find overall average, and make a distribution of this average for all the members of this class, from the highest to lowest. Next, I look for a "Natural Break" in the scores and award a letter grade. The philosophy I use is that similar scores will receive the same grade. Generally the distribution may be as follows:

85.0% & above	A
71.0-84.0%	B
55.0-70.0%	C
40.0-54.0%	D
Below 40%	F

VIII. References

C. Textbook

Gerald, C. F., and Wheatley, P. O., Applied Numerical Analysis, Seventh Edition, Addison-Wesley Co., 2004.

D. **Additional References:**

1. Steven C. Chapra, Applied Numerical Methods with MATLAB, Second Edition, McGraw Hill, 2008
2. John H. Mathews and Kurtis D. Fink, Numerical Methods Using MATLAB, 4th Edition, Prentice Hall, 2004.

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disabilities. Students with disabilities should register with the ADA Student Services Coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. ADA Student Services Center is located in Counseling Center (318-274-3338). If you need accommodations in this class related to a disability, please make an appointment with me as soon as possible. My office location and hours are: Carver Hall 113-C; 08:00 a.m.-08:50 a.m. MWF, 10:00 a.m. – 12:00 Noon MWF, and 9:30-10:30 a.m. Thursday.

WISHING YOU A VERY HAPPY, REWARDING, AND SUCCESSFUL SPRING 2011

PLEASE DO NOT HESITATE FOR ANY HELP YOU NEED FOR THE COURSE DURING ENTIRE SEMESTER AND EVEN AFTERWARDS WHEN YOU USE NUMERICAL METHODS IN YOUR OTHER COURSES. I HAVE A STRONG WILL TO TEACH AND MAKE YOU UNDERSTAND THE MATERIAL IN THIS COURSE. TOGETHER, WE CAN MAKE THINGS EASY AND ENJOYABLE.

GRAMBLING STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

COURSE SYLLABUS
PRINCIPLES OF BIOLOGY 113 (BIOL 113) LECTURE
SUMMER I 2009

I. Course Description

This course involves the study of animal and plant biology, basic chemistry, cell structure and function, metabolism, photosynthesis, cellular respiration, meiosis, gene activity, DNA and taxonomy. There is a separate laboratory course (BIOL 115) that parallels the lecture. Lect. 3 cr.hrs; Lab. 1 cr.hr

II. Rationale

This course is designed for the student to understand what constitutes life. Emphasis will be placed in studying the cell, basic chemistry, cell structure and function, energy and enzymes, photosynthesis, cellular respiration, mitosis and meiosis, gene mutation, genetics, classification of living things and plant evolution.

III. Competencies

Upon completion of each chapter, the student will, with at least 70% accuracy, be able to:

- Demonstrate the importance of the use of the scientific method within the scientific community.
- Demonstrate an understanding of the various diversities of living organisms.
- Demonstrate an understanding of the levels of organization among living organisms.
- Demonstrate an understanding of the four basic theories of life.
- Demonstrate the importance of basic chemistry and organic molecules as they relate to living organisms.
- Demonstrate an understanding of prokaryotic and eukaryotic cells.
- Demonstrate an understanding of the various cellular structures of organisms and functions of each.
- Demonstrate an understanding of the various pathways involved in the process of photosynthesis.
- Demonstrate an understanding of mitosis and meiosis.
- Demonstrate an understanding of the process of reproduction and development of various organisms as well as demonstrating and understanding of how genetics impacts the entire process.
- Demonstrate an understanding of Mendel's work as it relates to human genetics.
- Demonstrate an understanding of the structure of DNA and its function.
- Demonstrate an understanding of Watson and Crick's model of DNA.

- Demonstrate an understanding of chromosomes, gene activity, gene regulation and gene mutation.
- Demonstrate an understanding of the classification of living organisms.
- Demonstrate an understanding of the evolution and diversity of plants.
- Demonstrate an understanding of plant structure and function.

IV. Course Design

This course will consist of five lectures per week for a designated time period of one hour and fifty minutes each. The course is designed to have behavioral objectives, an outline of topics, the use of technology as well as the use of the Curriculum Resource Center.

V. Course Content

The Science of Biology
The Nature of Molecules
The Chemical Building Blocks of Life
Cell Structure
Membranes
Energy and Metabolism
How Cells Harvest Energy
Photosynthesis
Cell Communication
How Cells Divide
Sexual Reproduction and Meiosis
Patterns of Inheritance
Chromosomes, Mapping, and the Meiosis-Inheritance Connection
DNA: The Genetic Material
Genes and How They Work
Control of Gene Expression
Biotechnology
Genomics
Cellular Mechanisms of Development
Evolution
Diversity of Life on Earth
Structure and Organization of Plants
Control of Growth and Response In Plants
Reproduction in Plants

VI. Learning Activities

The student will be given study guides, reading assignments, technology based quizzes and exams and research assignments. **LATE ASSIGNMENTS ARE NOT ACCEPTED.**

VII. Special Course Requirements

- Attend class
- Be on time for class
- Understand that this is not a correspondence course or a course that works around your schedule; you are required to ATTEND CLASS!!

- The use of cell phones is prohibited in class
- Do not bring food to lecture
- Submit an email address to be used for the course
- Read the designated sections of the text and be prepared for discussions
- Complete all class assignments by the due date
- Take all exams on the scheduled date
- Type all homework assignments
- In class assignments can only be done in blue (navy) or black ink
- Be neat on all assignments
- Present excuses for any absence the date of return to class (no later than 2 class periods after return to class). You are required to discuss the status of the excuse and any missed work on the **first date of return to class** as well---failure to do so will jeopardize the acceptance of the work. Assignments given prior to the student's absence are still the student's responsibility and should be turned in the day of the student's return to class along with the excuse stapled to it. The assignment is accepted as pending and will be graded only when the excuse has been verified. A deadline for all makeup work will be given and must be adhered to in order to receive credit. (If the student delays and the assignment is given back to the class, the student will forfeit the ability to turn in the work.)
    - It is the student's responsibility to find out about any assignments given in class

VIII. Evaluation Procedure

Grades will be computed on a percentage basis according to the following schedule:

A—90-100
B—80-89
C—70-79
D—60-69
F----0-59

- Late Assignments are not accepted and will receive a percent score of 0. Each chapter test is worth 100 points and will be given at the end of the chapter.
- Quizzes will be given (announced and unannounced) during the semester. Late and absent students will receive a score of 0. **BE ON TIME FOR CLASS.**
- Points will be deducted for work that is not neat----if I can't read it, it is wrong.
- In class assignments that are written in the wrong color ink will receive a score of 0.
- Homework assignments that are not typed will not be graded.
- **Extra work is not provided on an individual basis-----Please do not ask me for extra work just for you, as this is unfair to the class as a whole.**
- Students involved in University related activities are expected to complete all class requirements. These students are required to discuss with me prior to the event that may cause an absence in order that arrangements may be made regarding class assignments. Documentation for each event is needed.
- Student written excuses are not accepted regardless of the age of the student.

IX. Textbook

Raven, Peter, Johnson, J., Mason, K., Losos, J., and Singer, S. 2008. *Biology.* (8th Ed.) Boston, MA: The McGraw-Hill Companies, Inc.

X. Assurance Statement

Grambling State University adheres to all federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. Students with disabilities should register with the Student Intervention Resource Center (Special Services facilitator).

XI. Family Educational Rights and Privacy Act (FERPA)

In accordance with FERPA, your instructor is not allowed to release information regarding your attendance or your academic performance to anyone other than you or officials of the university. This confidential information will not be given to anyone over the phone or via email.

XII. Academic Dishonesty

The University's position on academic dishonesty is clearly stated in the University Catalog. Academic Dishonesty is also addressed in the student code of conduct. Academic dishonesty could result in a grade of zero on an assignment or quiz, a grade of "F" in the course, or formal disciplinary action from the University.

GRAMBLING STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES

DEPARTMENT OF BIOLOGICAL SCIENCES

COURSE SYLLABUS

BIOLOGY 115
PRINCIPLES OF BIOLOGY I LABORATORY (Majors)
FALL 2010

COURSE DESCRIPTION

The Principles of Biology 115 Laboratory provides observations, experimentations and analysis to reinforce general principles of biology for science majors. This course is designed to provide a hands-on approach in which investigations are performed in order to answer fundamental questions in biology. There is a separate lecture course (BIOL 113) that parallels the lab. Lect. 3 cr.hrs; **Lab. 1 cr.hr**

OBJECTIVE

The objective of this course is to acquaint students with the study of the scientific method, basic chemistry, cell structure and function, metabolism, photosynthesis, cellular respiration, meiosis, gene activity, DNA and taxonomy by using primarily a hands-on approach to the Principles of Biology lectures. The theories that are discussed in lecture are focused on and enhanced within a laboratory setting.

COMPETENCIES

Demonstrate an understanding of laboratory safety.
Demonstrate an understanding of Science.
Demonstrate an understanding of the scientific method.
Demonstrate an understanding of the theory of evolution.
Demonstrate an understanding of the metric system.
Demonstrate an understanding of the proper use of the microscope.
Demonstrate an understanding of various types of cell structure and function.
Demonstrate an understanding of the concepts of the chemical composition of cells.
Demonstrate an understanding of the process of mitosis and meiosis.
Demonstrate an understanding of molecular movement.
Demonstrate an understanding of photosynthesis.
Demonstrate an understanding of the organization of flowering plants.
Demonstrate an understanding of seedless plants.
Demonstrate an understanding of cellular respiration.
Demonstrate an understanding of microbiology.
Demonstrate an understanding of Mendelian Genetics.
Demonstrate an understanding of human genetics.

BEHAVIORAL OBJECTIVES

The students will be introduced to the behavioral objectives as listed in the laboratory manual.

COURSE DESIGN

The course is designed to consist of one meeting per week. The time period is designed to be one (1) hour and fifty (50) minutes.

COURSE CONTENT

Laboratory Safety
Scientific Method
Metric Measurement
Atoms and Molecules
The Microscope
Survey of Cell Types: Structure and Function
Limitations on Cell Size: Surface Area to Volume
Structure of Some Organic Molecules
Enzyme Action: Testing Catalase Activity
Photosynthesis
Cell Respiration
Mitosis: Cell Division
Meiosis: Cell Division
Diffusion and Osmosis
Biological Membranes
DNA Extraction
Genetics Problems and Human Variation

LEARNING ACTIVITIES

The student will utilize a hands-on inquiry approach in order to compile and analyze data within a laboratory setting. The use of a laboratory manual is used as a guide and in the recording of scientific data that is collected during the laboratory experimental process. Demonstrations to various techniques will be provided to enhance the learning process as well.

SPECIAL COURSE REQUIREMENTS

Attend class

Purchase the laboratory manual –You cannot turn in work not in the lab book—Xeroxed copies are **not** accepted----**STUDENTS SHOULD HAVE BOOKS NO LATER THAN SEPTEMBER 14.** STUDENTS THAT DO NOT PURCHASE THE LAB BOOK WILL NEED TO DROP THE COURSE.

Submit an email address

Turn in all lab work upon completion by the end of the lab period. Late work is not accepted.

Take all exams on the scheduled date.

Do not leave class until you have turned in the required work for the day.

Students are required to clean their work area, return all materials used and push up their chairs prior to leaving the classroom.

Be on time for class--- Being tardy will result in (1) points deducted for small time missed or (2) a zero on the lab work. All instructions are given at the beginning of the lab class.

Be neat on all laboratory work to be turned in—Use liquid paper if needed.

You may use a pencil to do lab work. **Do not** use red, green etc. ink colors unless it is on a graph. Use only blue or black ink.

Present an excuse for a missed period the day of your return to class (no later than the following class period). Students that are absent or that are in **university activities** that

require them to **miss 4 or more** laboratory sessions should drop this course and sign up for a lab that meets on a different day as they will not receive a passing grade for missing 50% of the course. There are **no exceptions** to this statement. Check your university travel schedule during the first week to see if this will affect your attendance in this class.

- **Excused laboratory Absence**: The student will submit a **5 page report** related to the topic as assigned by Dr. Hill in order to obtain credit for the missed laboratory session. A deadline will be given. Failure to meet the deadline will result in a score of "0" for that laboratory grade.
- Understand that this is not a correspondence course or a course that works around your schedule, you are required to ATTEND CLASS!!

EVALUATION PROCEDURE

*****Grambling State University considers cheating of any form on a quiz, examination or assignment to be a very serious offense. Any student not adhering to the code of honor policy will be subject to likely consequences of censure, disciplinary probation, suspension, and/or dismissal from the university.**

Grades will be computed on a percentage basis according to the following schedule:

A—90-100
B—80-89
C—70-79
D—60-69
F----0-59

- Each laboratory activity is worth a minimum of 25 points
- Unannounced quizzes are possible.
- Late Assignments are not accepted and will receive a percent score of 0. All work is due by the end of the class period.
- Laboratory work from the lab manual is required. **Students must purchase the lab book**. **Xeroxed copies are not accepted**.
  STUDENTS MUST HAVE A LAB BOOK **NO LATER THAN SEPTEMBER 14**. STUDENTS THAT DO NOT PURCHASE THE LAB BOOK WILL NEED TO DROP THE COURSE.
- Late and absent students will receive a score of 0. **BE ON TIME FOR CLASS.**
- Students that are not present for a laboratory activity cannot turn in the laboratory assignment.
- Points will be deducted for work that is not neat----if I can't read it, it is wrong.
- Class assignments written in the wrong color ink will receive a score of 0. You may use pencil.
- **Extra work is not provided on an individual basis-----Please do not ask me for extra work just for you, as this is unfair to the class as a whole.**
- Students involved in University related activities are expected to complete all class requirements. These students are required to discuss with me prior to the event that may cause an absence in order that arrangements may be made regarding class assignments. Documentation for each event is needed. (**See the special course requirements statement regarding excessive absentees)**

- Student written excuses are not accepted regardless of the age of the student. Notes from relatives are not accepted.

TEXTBOOK

*********The Lab Manual is Required. Pages will be submitted from the lab manual to be graded.** (STUDENTS MUST HAVE A LAB BOOK **NO LATER THAN SEPTEMBER 14**. STUDENTS THAT DO NOT PURCHASE THE LAB BOOK WILL NEED TO DROP THE COURSE)***********

Principles of Biology Laboratory 1: Laboratory Manual Biology 115. Department of Biological Sciences, Grambling State University. McGraw-Hill Publishing Co.

OFFICE

Dr. D. D. Hill, Associate Professor
Office # 117 C, Carver Hall
Phone--- (318) 274-3739
Fax------ (318) 274-3741
Email—hilld@gram.edu

Conference Hours:
Wednesday 9:00 - 11:00
Thursday 9:00 - 2:00
Friday 8:00 - 11:00

ASSURANCE STATEMENT

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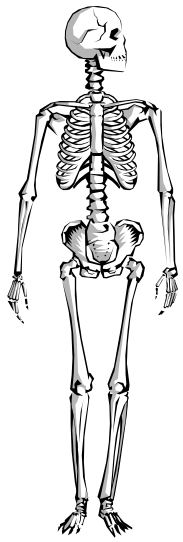
XIII. Family Educational Rights and Privacy Act (FERPA)

In accordance with FERPA, your instructor is not allowed to release information regarding your attendance or your academic performance to anyone other than you or officials of the university. This confidential information will not be given to anyone over the phone or via email.



Department of Biological Sciences

College of Arts and Sciences

Grambling State University

COURSE SYLLABUS

Biol. 114- Principles of Biology II

Spring Semester 2011

I. Course Description

The Principles of Biology lecture employs biological concepts that introduce you, the student, to the different body systems in humans and animals. This course will provide a problem-solving and self-learning experience which will serve the students well throughout their professional careers.

II. Objective

Students will be introduced to the physiological and anatomical structures of lower and higher animals. The student will be able to identify the anatomical structures as well as physiological events with each body system.

III. Course Design

The course is designed to meet three times a week for fifty minutes each. Students are encouraged to enroll in the laboratory section corresponding to the lecture section.

IV. Textbook

Biology. Raven, Johnson, Losos, Mason, and Singer, 9th edition, McGraw-Hill Publishers.

Students may access www.ravenbiology.com for class resource materials, links, articles and news.

V. Learning Outcomes/Competencies

When the student completes this course he/she should be able to:

- Use critical thinking and abstract reasoning skills in analyzing how biological and physical concepts impact daily life.
- Discuss the use and significance of the scientific method within the scientific community.
- Identify significant advances in science and technology
- Understand how animals are organized.
- Describe the function of skin in humans.
- Understand the circulatory system in the various classes of vertebrates and invertebrates.
- Trace the path of blood flow through the heart.
- Distinguish between specific and non-specific defenses of the body.

- Describe the role of the lymphatic system in defending the body against diseases.
- Identify the various types of digestive systems in animals; their physical and chemical functions, as well as the role of nutrients.
- Distinguish respiratory systems in terrestrial and aquatic animals, their functions and gas exchange.
- Describe vertebrate excretory systems, their structure, function, and end products.
- List various types of nervous systems in invertebrates and vertebrates.
- Describe structure and function of sense organs.
- Identify the location and function of major types vertebrate muscles.
- Describe the anatomy and function of the skeletal system.
- Identify the locations of the endocrine glands.
- Discuss the hormones they produce and their effects .
- Distinguish between sexual and asexual reproduction.
- Describe parts of the male and female reproductive systems and the role and function of each part.

VI. Course Content

- Organization of the Vertebrate Body
    - An introduction to the human body systems
    - The tissue level of organization
- The Cardiovascular System
    - Anatomy of blood vessels
    - Capillary exchange
    - Circulatory routes
    - Heart
- The Immune and Lymphatic Systems
    - Lymphatic vessels and lymph circulation
    - Lymphatic tissues
    - Immune response: non-specific immunity
    - Specific immunity
- The Digestive System
    - Overview of digestive processes
    - Oral processes related to alimentation
    - Deglutition
    - Organs: structure and function
    - Metabolism
- The Musculoskeletal System
    - Physiology and anatomy of bone
    - The axial skeleton
    - The appendicular skeleton
    - Articulations
    - Anatomy and physiology of muscle tissue
- The Nervous System
    - Nervous system divisions
    - Neurotransmitters

    - The spinal cord and spinal nerves
    - The brain and cranial nerves
    - Sensory, motor, and integrative systems
    - Autonomic nervous system
    - Special senses
- The Respiratory System
    - Conducting division
    - Respiratory division
    - Transport of oxygen and carbon dioxide
    - Developmental anatomy of the respiratory system
- The Urinary System
    - Renal physiology
    - Kidneys
    - Ureters
    - Urinary bladder
    - Urethra
    - Urinalysis
- The Reproductive Systems
    - Male reproductive system
    - Female reproductive system

VII. Attendance Policy

Students **MUST** attend class regularly. Attendance will be taken at the beginning of each class period. Attendance is extremely important as points may be deducted from your final grade for excessive absences. Students that arrive late for class may be marked absent if the roll has already been called. The door of the classroom **may** be shut. If the door is shut, no students will be allowed to enter.

Missed quizzes, assignments, ect. due to lateness will receive a grade of '0".

Absences resulting in missed exams have additional make-up requirements covered in "Make-up Policy" section

VIII. Special Course Requirements

- Be Responsible.
- **Turn off and put away all cell phones during class. *This is University Policy.***
- **Turn off and put away all mp3 players during class. *This is University Policy.***
- Bring all necessary materials to class such as a textbook, notebook, pen, pencil, and highlighter.
- Complete and turn in all assignments on time. ALL assignments are due at the **beginning of class**.
- Students who miss class for valid reasons must obtain an official excuse. You must provide the proper documentation such as a University excuse, doctor's excuse, court excuse, funeral director excuse or University related activity excuse. This document must have a contact phone number and date of absence. A duplicate copy may be

given to the instructor and the original keep for your records. It is the student's responsibility to make certain that the teacher receives an official excuse. Excuses should be submitted immediately following absence.

- Please remove all caps and pull up your pants before entering the class.
- Please adhere to the dress code policy found in the student handbook.
- Please do not use profound or violent language in class.
- Students will be required to check their blackboard account **DAILY, as assignments will be posted on Blackboard**.
    - **Username**: university ID #
    - **Password**: gsubb

IX. Evaluation Procedure

- **Learning Activities**

  There will be a variety of assignments throughout the course of the semester that have been planned as the course progress. These assignments **may** include group projects, research papers, individual projects, quizzes, reading and summarizing scientific journal articles.
    - Assessments will be used to evaluate student proficiency in critical thinking and abstract reasoning.
    - Students will be able to complete web based assignments and use blackboard.
    - Research assignments will be given to students to identify African American scientists and their contributions.
    - Assessments will be used to evaluate student proficiency in various concepts in the biological and physical sciences.
    - Research assignments will be given to students to identify advances in science and technology.

  All assignments are due on or before the specified class date unless otherwise stated.
  Late work **WILL NOT BE** accepted.

  All assignments are to be turned in to me personally **at the beginning class**.

- **Exams**

  Examinations will be administered regularly. Exams will test knowledge of material given in class including assigned readings, homework and discussions.

  Blue scantrons will need to be purchased for exams. These may be purchased in the Biology office (Carver Hall Rm. 138). **I don't use green scantrons**. **I will not grade green scantrons**.
  Four (4) regular 100-point exams and a 200-point final exam will be given.
  The final exam will be administered according to the official schedule of the university. This is the **ONLY** time that the final exam will be administered.

  Final Exam Date: Monday, May 9, 2011 1:00am – 3:00pm

- **Make-up Policy**

  No make-ups will be given for missed assignments, quizzes or projects.

Make-up** exams **will be given only on two days during the semester. Students** must **take missed exams on one of these two dates only.

Make-up dates: March 3, 2011 (11:00-1:00) and May 4, 2011 (11:00 – 11:50)

- **Grading Policy**
  The **final grade** will be based on performance on all activities (exams, assignments, quizzes, etc.) in the course. The final grade is based on the percentage of total points earned (i.e., total points earned divided by total points possible X 100). The grading scale is as follows:

Grade	Percent
A	**90-100%**
B	**80-89%**
C	**70-79%**
D	**60-69%**
F	**<60%**

- **Academic Dishonesty**
  Grambling State University considers cheating of any form (including plagiarism) on a quiz, examination, assignment, etc. to be a very serious offense. According to Grambling State University's policy on academic dishonesty, 'any act of cheating or plagiarism in a course by a student will be reported to the college/school dean and the student will receive an "F" for the course.'

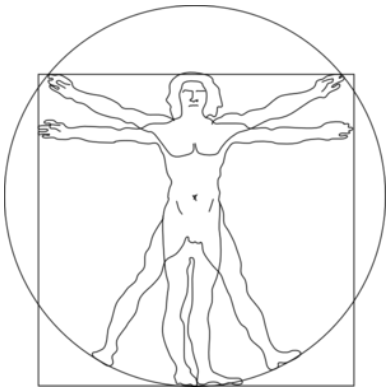
- **Contesting a Grade**
  If you wish to contest a grade, please send me, in writing, details of your reason within 48 hours of receiving the grade. This will allow both of us time to think, reflect, and discuss the matter without taking away from class time from other students. To contest any grade, you must follow university guidelines and you must provide a copy of graded assignments.

X. Assurance Statement

Grambling State University adheres to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations for students with disabilities. Students with disabilities should register at the Student Counseling Center located in Foster-Johnson and inform your instructor of any disabilities.

XI. Family Educational Rights and Privacy Act (FERPA)

Your instructor will not discuss your academic performance and/or class attendance with you via the telephone or e-mail. Your instructor will only discuss the above mentioned during a face-to-face meeting. Your instructor will not discuss with your parents and/or significant other your class attendance and/or academic performance via the telephone or e-mail. Your instructor will only discuss the above mentioned during a face-to-face meeting if the student is present and has given written permission for the instructor to discuss his/her academic performance and/or class attendance with his/her parent and/or significant other.



Department of Biological Sciences
College of Arts and Sciences

Grambling State University

COURSE SYLLABUS

Biol. 116- Principles of Biology Laboratory

Spring Semester 2011

I. Course Description

The purpose of your laboratory experience is to offer a continuation of observations, experimentation and analysis to supplement general principles of Biology. A hands-on approach is used to reinforce the lecture content and introduce you to the meaning and method of science by having you perform investigations designed to answer fundamental questions in biology.

II. Textbook

Principles of Biology II Laboratory Manual Biology 116

*Grambling State University Department of Biological Science*s

III. Rationale

A major objective of the Biology 116 laboratories is to provide hands-on opportunities for students. Laboratory experiences are designed to augment and reinforce several principles within the Principles of Biology series.

IV. Course Design

The course is designed to consist of one (1) laboratory period per week that lasts approximately 2 hours (one hour and fifty minutes).

V. Learning Outcomes

Upon successful completion of this course, the students will be able to:

- Use critical thinking and abstract reasoning skills while analyzing how biological concepts impact daily life.
- Effectively use information and communication technology to improve understanding of biological concepts.
- Discuss the importance of key concepts in the biological and physical sciences.
- Identify advances in science and technology.
- Apply laboratory safety skills and techniques.
- Describe various aspects of mammalian anatomy, the cardiovascular system, homeostasis, respiration, the nervous system and the senses, the digestive system, and the musculoskeletal system.
- Discuss the concepts of evolution and animal organization and the process of animal development.

VI. Course Content

- Laboratory Safety Skill and Techniques
- Animal Organization
- Chemical Aspects of Digestion
- Basic Mammalian Anatomy I and II
- Cardiovascular System
- Features of the Cardiovascular System
- Heart Rate and Physical Fitness
- Heart Rate and Ventilation
- Human Biology: Breathing
- Nervous System and Sense Organs
- Musculoskeletal System
- Animal Development

VII. Attendance Policy

Students **MUST** attend class regularly. Attendance will be taken at the beginning of each class period. Attendance is extremely important as points may be deducted from your final grade for excessive absences. Students that arrive late for class may be marked absent if the roll has already been called. The door of the classroom **may** be shut. If the door is shut, no students will be allowed to enter.

Missed quizzes, assignments, ect. due to lateness will receive a grade of '0".

There are no makeup lab activities or quizzes for students who were absent.

Punctuality is very important in the laboratory classes. Students who are late for class often miss vital information as to the completion of the laboratory experiment or will miss demonstrations or quizzes provided by the instructor.

VIII. Specific Course Requirements

- Each student is **required to purchase a laboratory manual**. Photocopies will **not** be accepted. Lab manuals will be checked daily.
- Each student is required to bring the following items to class: pencil, pen (blue or black ink **only**), and laboratory manual.
- All students are required to complete laboratory activities and quizzes on time.
- Please remove all caps and pull up your pants before entering the class.
- **Turn off and put away all cell phones during class**. This is ***University Policy***. Use of these items will result in a grade of 0 (zero) for the class period.
- **All mp3 players will be turned off and put away prior to the start of class**. This is ***University Policy***. Use of these items will result in a grade of 0 (zero) for the class period.
- Please do not use profound or violent language in class.
- Each student is required to clean their lab station (where you are sitting) before leaving. Push stools under lab station, turn off light/lamps, discard paper and return supplies.
- **Eating, drinking or chewing gum is prohibited in the lab.**
- No playing in the lab at any time.
- In the event of an emergency, please inform the instructor immediately.
- Students will be expected to be familiar with and use Blackboard/Moodle for various activities in this course.

- Students will be required to use Vernier computer software during the course.
- Computers in the lab will be used **ONLY** for class materials.
- Students will be assigned a lab station and will sit at this station during each class period. Each student will be responsible for the computer equipment at their lab station. Each station will be checked by the instructor at the beginning and the end of each lab period. In the event that any computer equipment is removed from a lab station, the student assigned to that station at the time of the equipment removal is responsible for the missing equipment.

IX. Evaluation Procedure

- **Learning Activities**
  There will be a variety of assignments throughout the course of the semester that have been planned as the course progress. The student will be given terms to define, reading assignments, technology assignments, quizzes and exams. Lab manuals will be graded daily for completeness.

  All students must purchase the lab manual **BEFORE February 21, 2011. After this date, any work not turned in will receive a grade of "0"**

  ****Students without a lab manual** will be allowed to complete lab material on notebook paper that the student will keep until the lab manual has been purchased; they will also have to fill out a "No Lab Book form". At the time of purchase, the student must transfer all work form notebook paper to the lab manual in order to get credit for the work.

  All assignments are due on or before the specified class date unless otherwise stated.
  Late work **WILL NOT BE** accepted.

  All homework assignments are to be turned in to me personally **at the beginning class**.

  There will be no makeup for laboratory procedures, quizzes or homework assignments.

- **Exams**
  In addition to the laboratory activities you will also have a midterm exam worth 100 points and a final exam worth 100 points.

  Final Exam Date: Monday, May 2, 2011 1:00– 2:00 pm

- **Grading Policy**
  Your lab grade is separate from your lecture grade. You will be graded on your points collected from various lab activities. All assignments are to be turned in to me personally during class. The **final grade** will be based on performance on all activities (exams, assignments, quizzes, etc.) in the course.

  Each lab completed will be worth a total of 100 points (this includes daily quiz, daily assignments, book grade, participation, homework, etc.)

  The **final grade** is based on the percentage of total points earned (i.e., total points earned divided by total points possible X 100).

  The grading scale is as follows:

Grade	Percent
A	**90-100%**

B	**80-89%**
C	**70-79%**
D	**60-69%**
F	**<60%**

- **Cheating**
  Grambling State University considers cheating of any form (including plagiarism) on a quiz, examination, assignment, etc. to be a very serious offense. According to Grambling State University's policy on academic dishonesty, 'any act of cheating or plagiarism in a course by a student will be reported to the college/school dean and the student will receive an "F" for the course.'

- **Contesting a Grade**
  If you wish to contest a grade, please send me, in writing, details of your reason within 48 hours of receiving the grade. This will allow both of us time to think, reflect, and discuss the matter without taking away from class time from other students. To contest any grade, you must follow university guidelines and you must provide a copy of graded assignments.

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College of Arts and Sciences

Department of Physics
Course Syllabus

3 Credit Hours
PHYS–153: General Physics I

I. Course Description

General Physics I is a calculus - based physics course for science majors. That is, this course is designed for physical science, mathematics and computer science majors. Physics deals with the behavior and composition of matter and its interactions at the most fundamental level. Course content for General Physics I includes topics on mechanics, waves and thermodynamics. Class meetings include three-one hour period, and a one hour problem session per week (4 contact hours). These do not require separate registrations. Pre-requisites: University admittance. Co-requisites: PHYS 153L or completion of PHYS 153L.

II. Rationale

This course introduces the student to the principles of mechanics, waves, and thermodynamics. It lays the foundation for the student's education in subsequent advanced courses.

III. Competencies

- *Personal and Professional Responsibility*. Students will demonstrate personal and professional proficiencies in pursuit of academic excellence in all courses pursued.

- *Subject Matter and Presentation Skills.* Performance in courses as evidenced by final grades will document success levels in the mastery of subject matter, written and oral communication skills.

- *Planning and Organization*. Students will demonstrate ability to plan and organize personal and professional skills. Students will also demonstrate an ability to generalize techniques to structure activities that will impact teaching and learning.

IV. Behavioral Objectives

At the end of this course, the student will be able to:

- Understand the importance of the principles of mechanics and heat to other academic and scientific disciplines.
- Understand the importance of the principles of mechanics and heat to the community.
- Demonstrate the principles of mechanics and heat in a laboratory setting.
- Analyze laboratory data and present findings in a written report.
- Relate the principles of mechanics and heat to the community.

V. Course Content

- Mathematics Review
- Vectors
- Motion in One Dimension
- Motion in Two Dimensions

- The Laws of Motion
- Applications of Newton's Laws
- Forces and Fields in Nature
- Work and Energy
- Potential Energy and Conservation of Energy
- Momentum and Collisions
- Rotational Motion
- Orbital Motion
- Temperature and the Kinetic Theory of Gases
- Heat and the First Law of Thermodynamics

VI. Learning Activities

Lecture/Note-taking
Solving Textbook Problems in Physics
Performing Laboratory Experiments
Writing Lab Reports

VII. Special Course Requirements

This course is composed of three one-hour lectures, and a one hour problem session per week. Accompanying this course is a two-hour per week laboratory, which requires separate registration.

CLASS ATTENDANCE: University polices and guidelines regarding class attendance will be followed as highlighted in the University Bulletin. Grambling State University uses the Class Attendance Policy of the University of Louisiana System. Minimum Class Attendance Regulations for the Colleges and Universities under the control of the Board are as follows:

1. Class attendance is regarded as an obligation as well as a privilege, and all students are expected to attend regularly and punctually all classes in which they are enrolled. Failure to do so may jeopardize a student's scholastic standing and may lead to suspension from the college or university.
2. Each instructor shall keep a permanent attendance record for each class. These records are subject to inspections by appropriate college or university officials.
3. A student shall submit excuses for all class absences to the appropriate instructor within three class days after the student returns to the respective class. The instructor may excuse the student for being absent and will also accept an official university excuse. The Registrar's Office does not issue excuses for absences.

Any University policy, regulation, or guidelines not explicitly included in this syllabus applies and must be consider as part of this syllabus, it is the student responsibility to know University policies, regulations, and guidelines. Any particular situation not properly considered by the University will be treated on a case by case basis.

ACADEMIC MISCONDUCT: Academic behavior is ruled by University policies and guidelines are included in the University bulletin as well as the Code of Students rights, Responsibilities, and behavior.

– Students are expected to maintain a professional classroom environment. Students are to

refrain from: verbal or physical violence, threats, improper language, disrespect to classmates and instructors. Participants of such activities will be asked to leave the class.

- **CHEATING:** There is a zero-tolerance policy about cheating, whoever is found cheating will get 0 points in that exam and the incident will be reported to the corresponding University official so they can apply University policies on cheating.
- **PLAGIARISM:** Plagiarism is defined by Merriam-Webster's dictionary as "to steal and pass off (the ideas or words of another) as one's own" *or* "to commit literary theft **:** present as new and original an idea or product derived from an existing source". There is a zero-tolerance policy about plagiarism. Plagiarized documents will receive 0 points and the incident will be reported to the corresponding University official so they can apply University policies on plagiarism.
- **VERBATIM COPY:** Extensively amounts of verbatim in assignments (even with use of references and quotations) will be penalized with point deductions.

VIII. Evaluation Procedures

Methods

Students will be evaluated based on their performance in examinations (including comprehensive final examination), quizzes, homework, and class participation and activities.

Grading Scale:

HOMEWORK: During each class period, homework will be assigned and it is expected that each student will complete it as much as possible. If there are any questions, you can come and see me during my conference hours or make an appointment. First several minutes of lecture period will be utilized to answer questions regarding homework assignment.

QUIZZES: There will be no make up for quizzes. Quizzes can be given at any time during the class period and last approximately 5 minutes. Arriving at class promptly is important.

TESTING: There will be 3 major tests and a comprehensive mid-semester and final examination. All students are required to take every exam when scheduled.

No makeup will be given unless there is an emergency and/or arranged in advance. No more than one makeup per student will be allowed during the semester.

CLASS OBSERVATION AND PARTICIPATION OF STUDENT

A small percentage (5 %) of your grade will be bases on my observation of you as a student. That is; attendance, attitude, willingness to participate in class, and what I characterize as satisfactory progress. Attendance will be taken at the beginning of each class. The GSU attendance policy will be followed (refer to the GSU Catalog).

GRADING: Each Test will be 100 Points

The Mid-semester (comprehensive) and Final examinations (comprehensive) will be 200 points each. , Quizzes, homework and individual/group activities will constitute 100 points each.

At the end of the semester, the final grade will be determined based on the ratio of point awarded to that of total possible points, using the following scale:

90 -100 A; 80 - 89 B; 70 – 79 C; 60 - 69 D; 0 – 59 F

IX. References

Textbook:

Raymond A. Serway and Robert J. Beichner, *Physics for Scientists and Engineers, 5th Ed.*, Saunders College Publishing, Fort Worth, 2000.

Recommended Journals

The Physics Teacher
Physics Today
Computing in Science & Engineering
Journal of Undergraduate Research
Journal of College Science Teaching

ADA Assurance Statement

Grambling State University adheres to all applicable Federal, State and Local laws, regulations, and guidelines with respect to providing reasonable accommodations, for students with disabilities. Students with disabilities should register with the ADA student services coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. If you need accommodations in this class related to a disability, please make an appointment as soon as possible.

***All cell phones are to remain off the entire period of class. If you need special assistance see me.**

College of Arts and Sciences
Department of Physics
Course Syllabus

1 Credit Hour

PHYS –153 L: General Physics I Lab

II. Course Description

This is a laboratory class designed to accompany PHYS 153 General Physics I. Selected experiments in physics are conducted. Co-Requisites: PHYS 153 or completion of Physics 153.

III. Rationale

General Physics I Lab is a one-semester laboratory course for science majors covering the basic concepts in physics. The course is designed to accompany the lecture course, General Physics I (PHYS 153). In the laboratory, the student will gain hands-on experience with the principles and laws discussed in the lecture course. Some topics to be covered are forces, laws of motion, linear momentum, statics, periodic motion, uniformly accelerated motion, energy and motion, free fall, inertia, circular motion, angular momentum, ballistics, mechanical properties of materials, and collisions.

IV. Competencies

- *Personal and Professional Responsibility*. Students will demonstrate personal and professional proficiencies in pursuit of academic excellence in all courses pursued.
- *Subject Matter and Presentation Skills.* Performance in courses as evidenced by final grades will document success levels in the mastery of subject matter, written and oral communication skills.
- *Planning and Organization*. Students will demonstrate ability to plan and organize personal and professional skills. Students will also demonstrate an ability to generalize techniques to structure activities that will impact teaching and learning.

V. Behavioral Objectives

At the end of this course, the student will be able to:

- Understand the physical environment and its relationship to man
- Understand scientific laws, principles, and theories
- Think critically and independently and be able to reason effectively
- Be proficient in oral articulation and written expression
- Be adept in general and scientific terminology

VI. Course Content

- Force Table
- Composition of Forces
- Newton’s Second Law of Motion

- Free Fall
- Air Track
- Inertia Balance
- Inclined Plane
- Non-concurrent Forces
- Head-on-collision- Air Track
- Centripetal Force
- Centripetal Force- Air Table
- Ballistic Pendulum
- Springboom Crane
- Ladder
- Rotational Kinematics- Air Table
- Rotating Cross-Moment of Inertia
- Rotating Cross-Angular Momentum
- Torsion Pendulum
- Energy and Motion
- Modulus of Rigidity
- Hooke's Law
- Uniformly Accelerated Motion- Free Fall (Computerized)
- Uniformly Accelerated Motion- Air Track (Computerized)
- Head-on-collision- Air Track (Computerized)

VII. Learning Activities

Writing Lab reports from Lecture/Note-taking
Class Discussions
Problem-Solving

VIII. Special Course Requirements

The *Laboratory Manual* is provided by the Department of Physics through the instructor when the student presents a validated fee sheet.

IX. Evaluation Procedures

The grade in this course will be based solely upon the number and quality of laboratory reports that are submitted to the instructor. The laboratory report is to have the following parts:

1. Student's Name
2. Exercise Number
3. Title of the Exercise
4. Purpose or Objective
5. Theory
6. Procedure and Materials
7. Data and Results
8. Conclusions

Grading scale:	A	=	90 or more points
	B	=	80 – 89 points
	C	=	70 – 79 points
	D	=	60 – 69 points
	F	=	59 or below

Cheating will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz or exam in which cheating, fraud, or mis-representation is found.

IX. References

Textbook:

General Physics, Physics 153 Lab Manual

Recommended Journals

The Physics Teacher
Physics Today
Computing in Science & Engineering
Journal of Undergraduate Research
Journal of College Science Teaching

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College of Arts and Sciences

Department of Physics
Course Syllabus

3 Credit Hours
PHYS–154: General Physics II

Semester:
Time and Place: MTWTRF 9:00 – 10:50(or another agreeable time), CH 188
Instructor: Dr. Avaine Strong; stronga@gram.edu, Office: 274.2687

I. Course Description

General Physics II is a calculus - based physics course for science majors. That is, this course is designed for physical science, mathematics and computer science majors, and is a continuation of General Physics I. Course content for General Physics II includes topics on electricity and magnetism, optics and modern physics. Class meetings include three one-hour lectures, and a one hour problem session per week (4 contact hours). Prerequisites: PHYS 153, PHYS 153L. Co-requisites: Physics 154L or completion of Physics 154L.

II. Rationale

This course introduces the student to the principles of electricity and magnetism and to geometric and wave optics. It lays the foundation for the student's education in subsequent advanced courses.

III. Competencies

- *Personal and Professional Responsibility*. Students will demonstrate personal and professional proficiencies in pursuit of academic excellence in all courses pursued.
- *Subject Matter and Presentation Skills.* Performance in courses as evidenced by final grades will document success levels in the mastery of subject matter, written and oral communication skills.
- *Planning and Organization*. Students will demonstrate ability to plan and organize personal and professional skills. Students will also demonstrate an ability to generalize techniques to structure activities that will impact teaching and learning.

IV. Behavioral Objectives

At the end of this course, the student will be able to:

- Understand the importance of the principles of electricity and magnetism and optics to other academic and scientific disciplines.
- Understand the importance of the principles of electricity and magnetism and optics to the community.
- Demonstrate the principles of electricity and magnetism and optics in a laboratory setting.
- Analyze laboratory data and present findings in a written report.
- Relate the principles of electricity and magnetism and optics to the community.

V. Course Content

- Electric Forces and Electric Fields

- Electric Potential and Capacitance
- Current and Direct Current Circuits
- Magnetism
- Induced Voltages and Inductance
- Oscillatory Motion
- Wave Motion
- Superposition and Standing Waves
- Electromagnetic Waves
- Reflection and Refraction of Light
- Mirrors and Lenses
- Interference of Light Waves
- Diffraction and Polarization

VI. Learning Activities

Lecture/Note-taking
Solving Textbook Problems in Physics
Performing Laboratory Experiments
Writing Lab Reports

VII. Special Course Requirements

This course is composed of three one-hour lectures, and a one hour problem session per week. Accompanying this course is a two-hour per week laboratory, which requires separate registration.

VIII. Evaluation Procedures

Homework assignments will be given at the beginning of each chapter. There will be approximately one class quiz per chapter. Class tests are given normally after three or four chapters. The time of the test is announced in advance. There will be one mid-semester exam and one final exam. These exams are cumulative.

Methods

Students will be evaluated based on their performance in examinations (including comprehensive final examination), quizzes, homework, and class participation and activities.

Grading Scale:

HOMEWORK: During each class period, homework will be assigned and it is expected that each student will complete it as much as possible. If there are any questions, you can come and see me during my conference hours or make an appointment. First several minutes of lecture period will be utilized to answer questions regarding homework assignment.

QUIZZES: There will be no make up for quizzes. Quizzes can be given at any time during the class period and last approximately 5 minutes. Arriving at class promptly is important.

TESTING: There will be 3 major tests and a comprehensive mid-semester and final examination. All students are required to take every exam when scheduled.

No makeup will be given unless there is an emergency and/or arranged in advance. No more than one makeup per student will be allowed during the semester.

CLASS OBSERVATION AND PARTICIPATION OF STUDENT

A small percentage (5 %) of your grade will be bases on my observation of you as a student. That is; attendance, attitude, willingness to participate in class, and what I characterize as satisfactory progress. Attendance will be taken at the beginning of each class. The GSU attendance policy will be followed (refer to the GSU Catalog).

GRADING: Each Test will be 100 Points

The Mid-semester (comprehensive) and Final examinations (comprehensive) will be 200 points each. , Quizzes, homework and individual/group activities will constitute 100 points each.

At the end of the semester, the final grade will be determined based on the ratio of point awarded to that of total possible points, using the following scale:

90 -100 A; 80 – 89B; 70 - 79 C; 60 - 69 D; 0 - 59 F

Cheating will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz or exam in which cheating, fraud, or mis-representation is found.

IX.References

Textbook:

Raymond A. Serway and Robert J. Beichner, *Physics for Scientists and Engineers, 8th Ed.*, Brooks/Cole Belmont, CA, 2010.

Recommended Journals

The Physics Teacher
Physics Today
Computing in Science & Engineering
Journal of Undergraduate Research
Journal of College Science Teaching

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ALL CELL PHONES ON SILENCE OR TURNED OFF.

College of Arts and Sciences
Department of Physics
Course Syllabus

1 Credit hour

PHYS –154L: General Physics II Lab

II. Course Description

This is a laboratory class designed to accompany PHYS 154 General Physics II. Selected experiments in physics are conducted. Pre-requisites: PHYS 153, PHYS 153L. Co-requisites: PHYS 154 or completion of Physics 154.

III. Rationale

General Physics II Lab is a one-semester laboratory course for science majors covering the basic concepts in physics. The course is designed to accompany the lecture course, General Physics II (PHYS 154). In the laboratory, the student will gain hands-on experience with the principles and laws discussed in the lecture course. Some topics to be covered are linear expansion, specific heat, viscosity, surface tension, simple harmonic motion, interference, electronic circuits, joule's law, spectrometry, sound, magnetism, heat, optics, and electrolysis.

IV. Competencies

- *Personal and Professional Responsibility*. Students will demonstrate personal and professional proficiencies in pursuit of academic excellence in all courses pursued.
- *Subject Matter and Presentation Skills.* Performance in courses as evidenced by final grades will document success levels in the mastery of subject matter, written and oral communication skills.
- *Planning and Organization*. Students will demonstrate ability to plan and organize personal and professional skills. Students will also demonstrate an ability to generalize techniques to structure activities that will impact teaching and learning.

V. Behavioral Objectives

At the end of this course, the student will be able to:

- Understand the physical environment and its relationship to man
- Understand scientific laws, principles, and theories
- Think critically and independently and be able to reason effectively
- Be proficient in oral articulation and written expression
- Be adept in general and scientific terminology

VI. Course Content

- Coefficient of Linear Expansion
- Specific Heat
- Heat of Fusion
- Viscosity

- Surface Tension
- Simple Spectrometer
- Optical Bench
- Shallowing Effect
- Interference
- Simple Harmonic Motion
- Melde's Experiment
- Sonometer
- Resonating Columns
- Electric Fields
- Wheatstone Bridge-Slide-wire Form
- Wheatstone Bridge-Box Form
- Potentiometer-Slide-wire Form
- Potentiometer-Box Form
- Electrolysis
- Joule's Law
- Earth's Magnetic Field
- Magnetometer
- Tangent Galvanometer
- Dynamo
- AC Wheatstone Bridge
- LRC Circuits
- Resonance in AC Circuits
- Transistor Amplifier

VII. Learning Activities

Writing Lab reports from Lecture/Note-taking
Class Discussions
Problem-Solving

VIII. Special Course Requirements

The *Laboratory Manual* is provided by the Department of Physics through the instructor when the student presents a validated fee sheet.

IX. Evaluation Procedures

The grade in this course will be based solely upon the number and quality of laboratory reports that are submitted to the instructor. The laboratory report is to have the following parts:

1. Student's Name
2. Exercise Number
3. Title of the Exercise
4. Purpose or Objective
5. Theory
6. Procedure and Materials
7. Data and Results
8. Conclusions

Grading scale:

A 90 or more points
B 80 – 89 points
C 70 – 79 points
D 60 – 69 points
F 59 or below

Cheating will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz or exam in which cheating, fraud, or mis-representation is found.

X. References

Textbook:

General Physics, Physics 154 Lab Manual

Recommended Journals

The Physics Teacher
Physics Today
Computing in Science & Engineering
Journal of Undergraduate Research
Journal of College Science Teaching

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COLLEGE OF LIBERAL ARTS
DEPARTMENT OF ENGLISH

COURSE OUTLINE

Fall 2010

ENGLISH 101: FRESHMAN COMPOSITION

Instructor: Beatrice McKinsey Office: Woodson Hall 205B Ph.# 274-4488 or 2272

I. COURSE DESCRIPTION

This is the first of two freshman composition courses. It deals with the fundamentals of written communication including paragraph and essay development and review of basic grammar. It emphasizes modes of writing.

II. RATIONALE

The purpose of this course is to insure that the freshman student has a thorough command of the English language and that such a command is reflected in written compositions. As a general Education requirement, this course is intended to provide the writing skills necessary to write well across the curriculum

III. OUTCOMES

When students complete this course, they should be able to:

A. Exhibit knowledge with the writing process such as planning, drafting, revising, editing, and proofreading and effectively use these processes in their writing.
B. Write at least four essays which have identifiable theses or purposes, that discuss these theses logically using correct grammar and MLA documentation, and that use rhetorical methods in reaching reasonable conclusions.
C. Analyze an assigned reading by identifying its components and explaining their relationships.
D. Complete a project incorporating research methods.
E. Use information and communication technology effectively.
F. Demonstrate effective oral communication by using Standard English in a well-organized manner.

IV. BEHAVIORAL OBJECTIVES

Having engaged in the prescribed experiences of the course, the student will be able to:

A. Choose and limit the scope of the topic properly.
B. Develop outlines t hat offer supporting information to its thesis
C. Apply the rules of grammar effectively to sentence structure, punctuation, and mechanics in all written compositions.
D. Demonstrate an understanding of the basic principles which govern the development of the essay
E. Write a research paper.
F. Make an oral presentation

V. COURSE CONTENT

A. Narration
B. Description
C. Exemplification
D. Definition

E. Comparison/Contrast
F. Classification/Division
G. Process
H. Cause & Effect
I. Argumentation
J. Fiction
K. Research Paper
L. Grammar, Punctuation and Sentence Structure

VI. LEARNING ACTIVITIES

In order to achieve the objectives of the course, the student will:

A. Engage in exercises necessary for the development of the essay.
B. Write grammatically correct and logical compositions.
C. Develop discussions based on the writings of other students.
D. Make oral presentations;
E. Write a minimum of 4 essays
F. Write a research paper.
G. Present orally in class.
H. Develop a journal
I. Design portfolios

VII. Special Course Requirements

A. Class attendance is mandatory.
B. Valid excuses must be presented before make-up work can be given.
C. Written assignments must be submitted on the due date.
D. Class participation is important.
E. Disruptive behavior will not be tolerated.

VIII. PERFORMANCE EVALUATION

Final course grade will be calculated on the basis of the four point system.
Evaluation Criteria

A. Narrative Essay (First essay 10 %).
B. Midterm Portfolio 30%
C. Final Portfolios 30%
D. Oral recitation and class participation will constitute 10% of final grade.
E. Homework will constitute 10% of the final grade.
F. Exit Exam 10%.

IX. REFERENCES (REQUIRED TEXT)

A. Harbrace Handbook
B. Patterns by Kirsner

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Grambling State University
College of Arts and Sciences

English Department
English 102: Freshman Composition

Prerequisite(s)

The student must have successfully passed Eng 101: Freshman Composition.

Course Description

English 102: Freshman Composition is a hybrid course which means that delivery will be face-to-face on a regularly scheduled basis along with regularly assigned online exercises via Blackboard. The course emphasizes critical reading, thinking, and writing. The research paper is a requirement for this course. This will be achieved through readings of literature and explication of the readings. Major focus of the course is on development of well-written research paper(s) using MLA documentation style.

Course Objectives

Upon completion of the course, the student will be able to:

A. Write at least four scholarly research essays which have identifiable theses or purposes discussed in a logical manner using rhetorical methods in reaching reasonable conclusions.
B. Write all research essays using MLA documentation, analyzing, synthesizing primary and secondary sources effectively. (GE)
C. Write all research essays using MLA documentation, demonstrating evidence of integrity and ethical behavior in academic work and in extracurricular activities. (GE)
D. Identify and retrieve electronic research articles using the Internet and other library computer databases including ERIC, MLA, JSTOR, Humanities, Infotrac, Proquest, etc. independently. (GE)
E. Use oral and written communication skills effectively by using Standard English in a well-organized manner. (GE)
F. Use critical thinking skills through readings.
G. Review current research through readings.
H. Use word processing to plan, draft, revise, edit, and proofread independently. GE)
I. Use information and communication technology effectively.
J. Engage in exercises necessary for the development of the research essay.
K. Participate in various collaborative learning activities.
L. View and discuss literary works utilizing higher-order, critical thinking skills.
M. Design and present PowerPoint presentations.

Proposed Resources and Materials

Required Textbooks

Glenn, Cheryl and Loretta Gray, eds. *The Writer=s Harbrace Handbook*, Brief Edition, 4th ed. USA: Thomson Wadsworth, 2011.

Kennedy, X. J. and Dana Gioia, eds. *Literature Introduction to Fiction, Poetry and Writing.* 11th ed. New York: Longman, 2010.

See GSU Bookstore for textbooks

Additional Resources

Recommended Journals

African American Studies
American Literature
Callaloo
College English
Emily Dickinson Journal
English Journal
English Language Notes
The Explicator
The Hemingway Review
Kenyon Review
Modern Fiction Studies
Modern Language Notes
Nineteenth-Century Literature
Poetry
Renaissance Quarterly
Research in the Teaching of English
Shakespeare Quarterly
Southwest Review
Studies in Short Fiction
Women=s Studies

Recommended Web Sites

African American Studies http://www.jstor.org/journals/10624783.html
American Literature http://www.jstor.org/journals/00029831.html
Callaloo http://:www.jstor.org/journals/01612492.html
http://ericir.syr.edu/Eric/adv_search.shtml
http://ejournals.ebsco.com/Hom.asp
http://proquest.umi.com/pqdweb

Resource Materials

Standard typing paper
Loose leaf paper (college rule)
One Red Vinyl Folder w Rings and Pockets (Portfolio)
Two Blue Books (81/2 x 11, 8 leaves)
Blue or black ink pen
Highlighters
Dictionary/Thesaurus (pocket)
Scantrons (green - appx. 10) Form #882
Disk, CD Rom, or Jump Drive

Course Requirements as Related to Course Objectives and their Corresponding Program Outcomes

In order to complete the requirements of the course, the student will be apprized of and adhere to the following:

Attendance and Class Participation

Class attendance is absolutely essential; therefore, a permanent record of attendance will be maintained. It is important to note, however, that simply attending class alone does

not warrant a passing grade; one must complete class assignments successfully and on time. Class participation is also just as important. Students will be expected to participate in all learning activities i.e., collaborative learning, oral presentations, guided video activities, and research. It is important to note, however, that if a student is absent during a guided collaborative exercise, there is no make-up. However, if a student is absent due to University activities accompanied with appropriate documentation, provisions will be made to help the student make-up the exercise. Moreover, if a student is absent during the viewing of a literary work, it is the student's responsibility to retrieve and read the selections as well as complete the exercises. No provisions will be made for special viewing after class. Finally, if a student is absent, he/she may bring official documentation within three (3) days of your return and submit to the instructor for review. However, if a student is absent for two or more weeks, please take supporting documentation to the Counseling Center. [See the 2009-2011 GSU General Catalog, p. 28]

Quizzes

Pop quizzes (opened- or closed-book) will be administered periodically at the beginning of the class to ensure students have read assignment prior to class; therefore, students must be punctual. Students who are tardy but arrive during the quiz will be allowed to take the quiz using only the time remaining. Students who enter after the quiz has been administered will not be allowed to make-up the quiz unless there are extenuating circumstances accompanied with appropriate documentation.

Make-up Work (Assignments, Quizzes, Tests)

Make-up work (assignments, quizzes, tests) will be given provided the student presents appropriate documentation to validate absence. All approved make-up work must be completed within *three days of the student=s return to class*. Make-up work may not necessarily be in the same format as the tests or activities administered in class; however, the content will be the same. In regards to other assignments, all work must be submitted on time when designated by the instructor. Finally, in order to ensure proper documentation, do not send assignments by anyone, place in my mailbox, slide under my door, or leave on my desk. Students with excessive excused or unexcused absences should drop the course to avoid receiving a grade of AF.@

Major Research Assignments [Portfolio]

Essays:

Composition writing supported by research is a major focus for this course. Therefore, students will be expected to discuss literary works and write essays from a research-based perspective. More specifically, students will write four essays of various lengths following prescribed guidelines. The number of required academic journal articles per research essay will be announced; thus, students will identify and retrieve using the Internet and other library computer databases including MLA, JSTOR, ERIC, Humanities, Infotrac, Proquest, etc. Students will prepare and present Powerpoint presentations on at least one of the mini research essays as well as other class project(s). Finally, students will be expected to use standard conventions of written and spoken English. Students who submit essays after designated class periods but on the same day

will be deducted one letter grade; one day late - two letter grades; two days late - three letter grades, etc.

Readings: Students will apply the steps to reading critically and actively on assigned essays, short stories, and other literary works.

Plagiarism

Glenn et al. explains that:

> Plagiarism is a serious offense. Taking someone else's words or ideas and presenting them as your own leaves you open to criminal charges. In the film, video, music, and software businesses, this sort of theft is called piracy. In publishing and education, it is called plagiarism or cheating. Whatever it is called, it is illegal. (278)

Academic Dishonesty is addressed in the *2009-2011 GSU General Catalog* on p. 37 as well as in the *Code of Student Conduct* at www.gram.edu. With this in mind, plagiarism will not be tolerated - if a student is found guilty of plagiarizing in this course, the **first offense**, the paper receives an "F." On the **second offense,** the student receives an "F" for the course.

Textbooks

Students will be expected to purchase and bring required textbooks to class; textbooks **will not** be shared.

Other Departmental/College/University Policies

In order to maintain a classroom climate that is conducive for learning and to display positive self-respect and respect for others, students are expected to govern themselves by the following rules as stated in the *Code of Student Conduct* at www.gram.edu or contact Judicial Affairs at (318) 274-6149: no eating or drinking should occur in class; all electronic devices (beepers, pagers, and cell phones) must remain off during class - they should not be visible during any quizzes or major exams - if they are, you are in jeopardy of receiving an "F" for the exam. Students who habitually leave their cell phones on will be reported to the University Judicial Board via written documentation. Also, in accordance with university policy, children are not allowed in class; men should not wear any type of headgear (caps, do-rags, etc.) in class. Finally, all clothing (pants) must be worn above the waist and not hidden underneath large t-shirts. I would appreciate it if all policies are followed as everyone deserves to work in an academic environment, without unnecessary distractions.

Technology Component and Course Evaluations

E-Mail and Blackboard Accounts

Students must activate and use their GSU student e-mail accounts. You will be responsible for checking your GSU account regularly during the semester and checking Blackboard at least every other day for posted course information. All students must have an activated GSU e-mail account no later than the third week of the semester. Since important handouts and assignments will be posted periodically through Blackboard, it is imperative that each student confirms that his or her Blackboard account is working. It is the student=s responsibility to work with Distance Learning in correcting any problem as the instructor is unable to correct these errors for the student. Students with problems activating their Blackboard account should immediately send an e-mail to Distance Learning. In order to

setup a Blackboard account students must use their university ID number ("G" followed by 8 numbers). The ID number will serve as the username. All students will use gsubb as the default password. Students should change their password after the first login. If you have questions, please contact the Office of Distance Learning at 318-274-6422/6321. When entering assignments in the digital drop box, please enter last name first (Doe, John) and then the title of the specific assignment – do not create titles for the assignment. Do not submit electronic assignments unless instructed to do so. When submitting via the digital dropbox, you must use Microsoft Word (98 or earlier) and double spaced.

Student Evaluation/Grading Procedures

The computation formula for the assignments will be based upon a point system. Each graded activity (tests, quizzes, homework, research essays, presentations, etc.) will be assigned a total number of points. For example, the student will be evaluated based upon the results of his/her:

Sixty Percent of Grade

1. Four Essays; all should be computer generated using MLA format and submitted in portfolio format] (400 pts.)

Forty Percent of Grade

2. Participation on research activities (250 pts.)
3. Participation on collaborative learning activities (60 pts.)
4. Performance on guided video activities (75 pts.)
5. Performance on PowerPoint presentations (120 pts.)
6. Performance on timed open-book pop quizzes; tests (250 pts.)

Note: Essays are worth 60% of your grade which is the deciding factor for the overall grade.

Grading Scale

90 - 100 = A
80 - 89 = B
70 - 79 = C
60 - 69 = D
0 - 59 = F

Assurance Statement***

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Grambling State University
College of Arts and Sciences
Department of English

English 200 –World Literature
CRN 21321: 3 semester hours

Spring Semester: TR @ 2:30-3:50 p.m.
Office Hours: Tues. 1-2 p.m. & 4-5 p.m.
Thurs. 12-2 p.m. & 4-5 p.m
Others by appointment
January 18 – May 21, 2011

Dr. Uju Ifeanyi, Associate Professor
Woodson Hall, 205A
Office Phone: (318) 274-4486
E-mail: ifeanyiu@gram.edu

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Prerequisite

None

Course Description

English 200 surveys literary works of the ancient world up to the 18th century. It examines classical African, Asian, and Western literatures.

Course Goals

English 200 examines diverse masterpieces of the world. It covers selected works from the ancient world to the 18th century. This course highlights the significance of cultural and literary contexts in which representative works were created.

Course Objectives and Corresponding Outcomes

The course incorporates lectures, oral reports, essay development, collaborative learning activities, discussions, tests, and written responses to literary works studied.

Upon the completion of this course, the student will be able to:

A. demonstrate knowledge of the selections studied.
B. analyze, critique, and interpret assigned selections.
C. write a paper on a researched topic; show evidence of integrity in documentation.
D. demonstrate ability to learn independently.
E. demonstrate an understanding of representative literatures of the world.

Textbook

Lawall, Sarah and Maynard Mack. Eds. The Norton Anthology of World Literature. *2nd ed. New York: Norton & Company, 2002.*

Course Requirements

A. *Materials Needed: Required textbooks, loose-leaf paper (wide rule), black pens, no. 2 pencils, green scantrons, pocket folders, stapler, dictionary, and an examination blue book (11 x 8.5) with 24 pages.*
B. *Attendance: Class attendance is required of all students irrespective of academic status. Students who arrive fifteen minutes late or leave before class is dismissed will be considered absent. Absence from class will be excused with valid/official documentation. The teacher will determine validity of the excuse.*
C. *Make-up Work: Timely submission of work is expected. However, students can make up work upon submission of excused absence.*
D. *Disruptive behavior is unacceptable. See Student Handbook.*
E. *Work done outside the classroom must be submitted typed or word processed, and double-spaced, with one-inch margin. Use font size 14. Proper heading is required. See boxed example below.*

Note: *See additional course criteria.*

Your full name *Start numbering from the next page.*
Example: Last name 2
Dr. Ifeanyi
English 200 – TR 2:30-3:50 p.m.
January 18, 2011
Thematic Concerns in Euripides' Media

Student Evaluation

Students earn points on work done. At the end of the semester, these points are converted to percentages to determine letter grades.

Tentative Activities	***Points***	***Grading Scale***
Tests/Quizzes	*150*	*A = 90 -100*
Responsive essays	*200*	*B = 80 -89*
Mid-session exam	*100*	*C = 70-79*
Oral Presentations	*200*	*D = 60- 69*

Dramatization	*100*	*F = 00-59*		
Class Participation	*050*			
Final Exam			*150*	
Total				*950*

Course Outline and Assignment

January

Course Introduction (syllabus and course requirements)
In-class Writing (diagnostic)
Reading, Thinking and Writing Critically
Literary Terms (fiction, poetry, drama)
The Analytical Essay and Literary Appreciation

February

Early Literatures
The Bible: The Old Testament
Gilgamesh
Responsive Writing (analysis)
Ancient Greek Literature
Antigone, *The Odyssey* (selected books) *Oedipus*, *Medea*, and *The Apology of Socrates*

March

From Roman Empire to Christian Europe
The New Testament (selected readings)
Augustine (selected books)
Midterm Examination
Student Self Assessment
Research Project (critical analysis on an approved topic: an independent study)
Poetry and Thought in Ancient China
Classic Poetry (#s XX, XXIII, XLII, LXXVI, and CCXLV)
T'ang Poetry (Selections from Han-Shan, Li-Po, and Po Chu-I)

April

The Rise of Islam and Islamic Literature
The Koran (selected readings)
The Story of Sheikh Sam'an
The Formation of a Western Literature
Responsive Writing (comparison and contrast)
Beowulf
Medieval Lyrics (selections)
Chaucer (*General Prologue*, *The Wife of Bath's Prologue & Tale*)
Sir Gawain and the Green Night

Everyman
African Literature
Things Fall Apart
The Oral Tradition (selected folktales and proverbs)
Responsive Writing (explication)

May

The Renaissance in Europe
The Praise of Folly
Of the Power of the Imagination, Of the Inconsistency of Our Actions
Make-up Work (official documentation required)
Final Examination Review
Final Examination

Note: (a) This document is subject to change at the teacher's discretion.
(b) Pop quizzes will **not** be announced.
(c) Scholastic dishonesty is absolutely unacceptable.
(d) Test dates and due dates for specific assignments will be announced periodically.
(e) Course outline is not aligned with textbook chapters.

Policy on Plagiarism

Proper documentation is required at all times. To avoid plagiarism, you are strongly advised to give credit to all the sources cited in-text or on the reference page. Borrowed words include direct quotes, paraphrases, summaries, and ideas from other writers. Please note that plagiarism violates academic integrity. For this reason, the teacher reserves the right to give an "F" on the assignment done. The 2nd violation results in failing the course.

Assurance Statement

Grambling State University adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. Students with disabilities should provide the Student Intervention Resource Center with the required documents. They should also contact the professor in a timely manner to arrange for appropriate accommodations.

Additional Course Criteria
Dr. Ifeanyi
Department of English
Grambling State University
Spring Semester, 2011

"Our goals can be reached through a vehicle of a plan, in which we must fervently believe and upon which we must vigorously act. There is no other route to success." ~ Steven A. Brennan

Attendance
Students are required to attend all class meetings regularly irrespective of academic status. Those

who arrive fifteen minutes late or leave before class is officially dismissed will be considered absent. Adjust your time pieces to synchronize with the university clock. This will help us to minimize or even avoid discrepancies regarding time keeping.

Absence
Absence from class may be excused with legitimate excuse as determined by the teacher. It is the responsibility of the student to submit a photocopy of the official excuse. Three or more unexcused absences will affect a student's final grade. For example, the letter grade **B** automatically drops to a **C.** Please note that four late arrivals to class meetings equal one unexcused absence. **If you have other commitments, academic or personal, that will keep you away from class, most of the time, please consider taking this course later when you can afford the time and effort needed for a successful outcome.**

Make-up work
Students are advised to submit **all** assignments **on time**. Because this is not always possible, they will be allowed to make up no more than two assignments upon submission of a valid excuse. The date on the official excuse form must synchronize with the date the work was done. Students are, therefore, strongly advised to keep **accurate** records of days missed. All work must be submitted no later than two class meetings after returning to class. Those engaged in university related activities can make up all assignments. However, if they miss class for personal reason(s), they will be required to obtain official excuse(s). To facilitate the process, these students are advised to submit a schedule of activities at the beginning of the semester, indicating activity dates/times. If a student is absent, he/she is still responsible for all work done in his/her absence and for any announcements regarding future assignments**.** Those who join the class late will be allowed to make up missed work with **valid** excuse.

Reading Selections and Participation
Classroom discussion stimulates comprehension of the subject. To adequately prepare for discussions, everyone is required to **read** assigned selections. Every member of the class is encouraged to ask questions, and listen when someone else does so. Periodically, pop quizzes will be administered with or without prior notice. Some pop quizzes will be administered at the beginning of class.

Classroom Environment
Classroom decorum is strongly encouraged. To keep the classroom clean, no food or drink is allowed. **Be advised that disruptive conduct is absolutely unacceptable.**
Use of illegal substances is strongly prohibited.

Conferences
There will be no conferences by phone. Students are required to attend conferences as often as needed. No meaningful conference can take place during a short break between classes. Anyone who comes to conference should be ready with specific questions and/or comments on course-related issues. Be advised that conference sessions will not be used for computing grades. It is the student's responsibility to take note of all the assignments done and to keep an accurate record of the points earned.

Unit Quizzes/Tests and Examinations
Throughout the semester, students will be given pop quizzes, multiple choice tests, and essay examinations. No make-up is planned for pop quizzes. Also, **no changes will be made on the test paper or the scantrons after they have been distributed to the class.** The student is **solely responsible** for items missed or improperly erased.

Grading Policy
Students earn points during the course of the semester. However, letter grades are assigned at midterm and at the end of the course based on overall performances. The letter grades will be derived from the following grading scale.

A	90%	-	100%
B	80%	-	89%
C	70%	-	79%
D	60%	-	69%
F	0%	-	59%

Conversion of points to percentages is determined as follows:

$$\frac{\text{Points earned}}{\text{Total possible points}} \times 100\% = \%$$

The above formula can also be used to determine percentages of individual assignments, tests, and examinations.

Final Examination
There will be no early final examination. Plan to take it on the date stipulated by the university. A copy of the Fall Examination Schedule is attached for your convenience. Take note of the particular dates and times.

Grambling State University Policy on Illegal Drugs
Grambling State University is a drug free zone. The health and safety of this academic community should be sustained at all times. Please understand that the smell of alcohol, or illegal substances on clothes, backpacks, and papers violates other people's right to clean, unpolluted air. Oftentimes, the smell is so offensive that it makes some people physically sick. If such smell is detected on a student, he/she will be sent to the appropriate authorities for immediate action.

Note:

- Attend class meetings regularly.
- Bring this set of instructions to class meetings and conference sessions. If need be, e-mail or call to cancel scheduled appointments.
- Papers submitted in my mail box, slipped under my office door, or placed on the office desk in my absence, will be rejected. Papers with stains (lipstick, soda, coffee, juice, etc.) will be rejected.
- Turn off cell phones, iPods, and other similar gadgets when class is in session. If you must call someone, text, or take a call, please do so outside the classroom. Do not use any of these instruments during tests, quizzes, and examinations.***** Violation of this policy will affect your participation points.

- Sign “assignment sheet” for all the papers submitted.

- **Bring textbook(s), green scantrons, and other course materials to every class meeting**.

- The bulk of the work you do will be done individually. However, there will be times when you will be required to work collaboratively with your peers and/or present projects to a target audience. Everyone is expected to comply. There are no exceptions. Proper professional attire is required for oral presentations. No jeans, capri pants, flip-flops, or tennis shoes please! Suggested outfits are as follows: dress pant, long sleeve shirt, and a tie for gentlemen and skirt or pant suit for ladies.***** Let me know ahead of time if you have any questions or concerns.

- Extra credit points are not guaranteed. However, you are advised to take advantage of any opportunity that presents itself during the course of the semester.

- Read all directions carefully, and write legibly. Even after a peer’s or professor’s feedback, the student is solely responsible for editing the final version of any given paper.

- Students who miss class should get the lecture notes from fellow classmates. Questions pertaining to the lectures should be brought to my attention. Also, instructional videos/films **will not** be shown multiple times.

- Keep extra copies of all the assignments done. It is your responsibility to keep a good record of every work done and the points earned throughout the semester.

- To avoid missing class needlessly, use the university calendar to plan your travels.

- ****** See article on GSU’s policies on students’ dress code, use of electronic devices, classroom misconduct, and aggressive behavior. ~ ***The Gramblinite*** 20 Aug. 2009:2.

GRAMBLING STATE UNIVERSITY
COLLEGE OF Arts and Sciences

***PA 201/ CS201/Biol 407* – Social, legal and ethical issues for the information age**
CS 201: Social, legal, and Ethical issues in Information Age

Semester: Fall 2011 **Total Credits: 3**
Time & Place:
I. Instructor: TBA **Office:** **Phone #**
Conference hours:

I. Course Description:

This course addresses the legal, ethical, and social issues relevant to information technology and computer professionals. The course stresses the ways in which computers challenge traditional and philosophical concepts. Topics include code of conduct, privacy, intellectual property rights, and proprietary software, security, accountability, liability, the digital divide, hacking, and viruses. Prerequisites: CS 110

II. Course Rationale:

The purpose of this course is to provide students the understanding of social, legal, ethical, intellectual property issues, professional responsibilities, and security issues in the computer information technology. The course enhances the students' knowledge in the current trends, techniques, risks, responsibilities, capabilities, and benefits in the computer information era. Students understand the ACM/IEEE code of ethics as part of the course.

III. Competencies

After completing this course, students will be able to:

A. Understand the social, legal, ethical and security issues inherent to the discipline of computing
B. Understand the responsibilities of computer expert professionals, among those, the need to remain current their specialty and in the discipline of computing is emphasized.

IV. Behavioral Objectives

The students will be able to:

A. describe milestones in computing, networking and information storage and retrieval
B. recognize the social impacts of computing, networking and information storage and retrieval
C. compare various ethical frameworks
D. apply various analytical tools and ethical frameworks in order to build an ethical argument
E. explain the ethical and legal foundations for intellectual property protection
F. distinguish among trade secret, trademark, patent and copyright
G. explain the ethical and legal foundations for privacy protection
H. describe computer-based threats to privacy
I. explain the technical basis for viruses, worms and denial-of-service attacks
J. differentiate among correctness, reliability and safety in the context of software systems

K. state why computer experts are professionals
L. explain why a computer professional must remain current in its specialty and in the field of computing
M. contrast the ethical tension points in whistle blowing and describe the different phases in a whistle blowing incident
N. apply the ACM code of ethics

V. Course Content

I. History of Computing and social implications (Chapter 1 & 3) 6 Hours
   A. Milestones in Computing
   B. Milestones in Networking
   C. Milestones in Information Storage and Retrieval
II. Building ethical arguments 9 Hours
   A. Building arguments
   B. Analyzing arguments
   C. Ethical frameworks (Chapter 2)
III. Intellectual Property (Chapter 4) 4 Hours
   A. Foundations of Intellectual Property
   B. Trade secrets, trademarks, patents and copyrights
   C. Modern Technologies and Intellectual Property
IV. Privacy (Chapter 5) 4 Hours
   A. Ethical and legal basis for privacy protection
   B. Modern Technologies and privacy
V. Computer Security and Reliability (Chapter 6 & 7) 9 Hours
   A. Security Risks (
      (Viruses, worms and Trojan Horses, Denial of Service attacks)
   B. Phreaking, Hacking and Ethics
   C. Risks: Systems correctness reliability, and safety
VI. Professional Ethics (Chapter 8) 6 Hours
   A. Professionalism
   B. Ethical dissent and Whistleblowing
   C. The ACM code of ethics

Tests/Exams/Quizzes 6 Hours

VI. Learning Activities

Learning activities include lectures, in-class discussions, reading and written assignments.

VII. Blackboard

Each student will be enrolled in this supplemental electronic classroom. It is incumbent on each student to check the various components for announcements, assignments, updates, posted activities (On-line testing will be an assessment tool.) and other information.

VIII. Grading policy

Short Written Assignments 15%

Midterm exam 25%

Term paper	25%
Final Exam	25%
Participation	10%

IX. Grading Scale

Percentile (%)	Grade
90-100	A
80-89	B
70-79	C
60-69	D
Below 60	F

X. Plagiarism

Plagiarized assignments are worth an 'F' grade. It is always safe to work to work with your teacher when you have difficulty.
Students can discuss assignments in groups or with tutors, they can search the Internet for similar assignments, but each student must write its own code and its own answers.

Cheating on an examination earns an 'F' grade.

XI. Late policy

Students have 2 free extensions of 2 working days for the semester. Beyond the second day after the due date, the assignment will not be accepted.
Once a student has spent his 2 free extensions, only serious and documented excuses will be accepted (death in the family or serious medical problems).

Late penalty:

- - 10 points the first day
- - 20 points the second day
- Assignment not accepted on the 3rd day

XII. References

Textbook: *Ethics for the Information Age*, fourth edition, Michael J. Quinn., 2010, Addison Wesley, ISBN: 978-0132133876

Other supplemental material

- Deborah G. Johnson , *Computer Ethics*, 4th edition, Prenctice Hall, 2009, ISBN: 978-0131112414
- Sara Baase, *A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet*, 3rd ed., Prenctice Hall, 2008, ISBN: 978-0136008484

Special Course Requirements

- Regular and punctual class attendance is expected of each student. The student is responsible for understanding and adhering to course requirements and meeting scheduled deadlines.

- No makeup tests without proper documentation excuse.
- The student is expected to participate in the discussion of material from textbook.
- The students are expected to complete the assignments individually. A student may be called upon to present the solution to an assignment to the class.
- Copying of assignments or copying in tests results automatic grade "F".
- Each student will give, in class, a presentation of an assigned topic from the textbook or other suggested resource. These presentations are typically about twenty minutes in length.
- Power off cell phones during the class time
- Any student participating in an extracurricular activities (e.g., band, football, track, etc.) must bring signed verification from activity's sponsor/director on or before third week of school. Notification of scheduled events that conflict with test dates must be given in advance so that tests may be rescheduled. Test or assignments may be rescheduled to an earlier date than the scheduled date, but must be complete prior to the next class period. F the student neglects to give early notification a grade of "F" will be given for that test or assignment.

Disability Statement (Please see ADA Student Service Handbook page 3 for Assurance statement)
If you need accommodation in this class/setting/facility related to a disability, please make an appointment to see me as soon as possible. My office hours are set forth at the beginning of this document.

Contact Information and Resolution of Concern(S) and Problem(S)
If you have any concerns/problems regarding any aspect of the course, please discuss it FIRST with me (instructor). If you are not satisfied with my answer then discuss with department head, followed by Dean if necessary.

Appendix B – Faculty Vitae

Faculty Vitae

1. **Name:** **Dr. Yenumula B Reddy**

2. **Education**

Degree	Field	Institution	Date
B.Sc	Math, Physics, Chemistry	Andhra University, India	1967
M. Sc.	Mathematics	Osmania University, India	1970
Ph. D.	Computer Science	Indian Institute of Technology	1978

3. **Academic** experience – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

Institution	Rank	Title	When Full time (FT)or Part Time (PT)
Grambling State University	Asst. Prof	-	1986-1989 FT
Grambling State University	Assoc. Prof	-	1989 – 1997 - FT
Grambling State University	Professor	CS Coordinator	1997 – Current -FT

4. **Non**-academic experience – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

Company	Title	Brief Description of Position	When Full time (FT)or Part Time (PT)
National Informatics Center; Dept. Electronics; Gov. of India	Sr. Systems Analyst	• Incharge Data Security; • Devlp. of Information Systems; • Headed one programming Group	1977-1980 (FT)
Regional Computer Center, Pune, India	Ast. Director	• Incharge of operations, Program group, and University Projects	1980 – 1980(FT)
Indian Institute of Technology, India	Systems Programmer	• Incharge of IIT Delhi user group, Computer Operations	1980-1985(FT)
Central University, Hyderabad, India	Director	• Incharge overall operations of University computer center	1985-1986(FT)

5. **Certifications** or professional registrations
   - Editorial Board Member: International Journal of BITM Transactions on Electrical, Electronics, Computer and Communication
   - Editorial Board Member: Science Academy Transactions on Computer and Communication Networks (SATCCN)
   - Editorial Board Member: International Journal of Engineering and Industries (IJEI)
   - Member of Steering Committee/Advisory Board/Technical Committee of Journal of MASAUM of Computer science
   - Executive Committee Member: Louisiana Academy of Sciences
6. **Current** membership in professional organizations
   IEEE, ACM, Louisiana Academy of Sciences

7. **Honors** and awards
   - Y. B. Reddy., Efficient Spectrum Allocation Using Case-Based Reasoning and Collaborative Filtering Approaches", SENSORCOMM 2010, July 18-25, 2010 (Received Best Paper award).
   - Durand, J., Kafley, S., and Y. B. Reddy., "Detecting and Identifying Selective Forwarding Attack Nodes in Wireless Sensor Networks", 84th Annual Meeting of The Louisiana Academy of Sciences, Feb 27, 2010 (Won the award in 2010 LAS annual meeting for best oral Presentation)
   - Selected by Louisiana Board for International faculty exchange Program 2010 to conduct "High Performance Computing and Wireless Networks" course at pole University and completed the 8 Hr. Presentation successfully in March 15 – 19, 2010
8. **Service** activities (within and outside of the institution)
   - Chair, 2nd International Symposium on Networks and Communications in connection with ITNG 2011. April 11 – 13, 2011, Las Vegas, Nevada, USA
   - Chair, 1st International Symposium on Networks and Communications in connection with ITNG 2010. April 12 – 14, 2010, Las Vegas, Nevada, USA
   - Track Chair: **Special Track Session on Wireless Communications and Networks,** ITNG 2009April 27 – 29, 2009, Las Vegas, Nevada, USA
   - Track Chair: Special Track **Session on Wireless Communications and Networks,** ITNG 2008, April 7 – 9, 2008, Las Vegas, Nevada, USA
   - Ph. D. Thesis Examiner (2010): **Title: "Context Honeypot" by Mr. Anand Gupta; Delhi University, India**
   - Ph. D. Thesis Examiner (2010-11): **Title: "**Approaches to Implement Selective Encryption with High Level of Security **" by Mr. Babu Bhuyan,** Jadavpur University, Kolkata – 700032, India
   - Ph. D. Thesis Examiner (2010-11): **Title: "**An Event-Based Framework for Object-Oriented Analysis, Computation of Metrics and Identification of Test Scenarios" by Mr. Sandeep Kumar Sing, Jaypee Institute of Information Technology, A-10, Sector-62, Noida-201307, INDIA
9. **Briefly** list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation
   - Associate Editor, Proceedings of ITNG 2011, ITNG 2010, ITNG 2009 (Received best track service award in ITNG 2009): Las Vegas, Nevada, USA
   - Associate Editor, "Soft Computing Applications in Industry", ISBN 978-3-540-77464-8, Springer 2008, Edited by Bhanu Prasad.
   - Y. B. Reddy., "Potential game models for efficient resource allocation in Wireless Networks", : Journal of Science Academy Tran. on Computer and Communication Networks, Mmarch 2011.
   - Y. B. Reddy and Sanjeev Kafle., "Protecting data from unauthorized users using Honeypots Technique", CSOC 2011, January 24-31, 2011
   - Y. B. Reddy and Rastko Selmic., "Secure Packet Transfer in Wireless Sensor Networks – A Trust-based Approach", IARIA- ICN 2011, January 23-28, 2011 - St. Maarten.
   - Y. B. Reddy and Rastko Selmic., "Trust-based Packet Transfer in Wireless Sensor Networks", Communications and Information Security (CIS2010), IASTED, Nov 8-10, 2010,USA
   - Y. B. Reddy., "Efficient Spectrum Allocation Using Case-Based Reasoning and Collaborative Filtering Approaches", SENSORCOMM 2010, July 18-25, 2010 (received Best Paper award).
   - Y. B. Reddy and Heather Smith., "Congestion Game Model for Efficient Utilization of Spectrum", SPIE, 2010
   - Y. B. Reddy, Heather Smith, and Michael Terrell., "Congestion game models for Dynamic Spectrum sharing", ITNG 2010
   - Y. B. Reddy., Jan Durand, and Sanjeev Kafle., "Detection of Packet Dropping in Wireless Sensor Networks", ITNG 2010
10. **Briefly** list the most recent professional development activities

- Chaired a session on Authentication and Access Control, in Communications and Information Security, IASTED 2010, Nov 8 – 10, 2010, Marina Del Ray, CA
- Chaired a session on SENSORCOMM-2, in IARIA SENSORCOMM 2010, July 18-25, 2010
- Chaired two sessions on Networking and Wireless Communications, ITNG 2010, April 2010

Faculty Vitae

1. **Name: Dr. Nelly Delessy-Gassant**

2. Education

Degree	Field	Institution	Date
B.S	Physics	University of Antilles-Guyane	1999
M. S	Computer Science	Telecom ParisTech	2002
Ph. D.	Computer Science	Florida Atlantic University	2008

3. Academic experience

Institution	Rank	Title	When Full time (FT)or Part Time (PT)
Grambling State University	Assistant professor		FT
Florida Atlantic University	Student Instructor		PT

4. **Non-academic experience**

Company	Title	Brief Description of Position	When Full time (FT)or Part Time (PT)
CNASEA (A French governmen t agency)	Business Analyst / Software Architect	• Business analysis : Collaborating with business development teams during bid/proposal phase to qualify opportunities and deliver accurate proposals and presentations • Management of local projects • Participated in the conception and design of national service-oriented applications	Aug. 2008 – Aug. 2009 FT
France Telecom R&D	Security Consultant	• Key contribution to the development of an innovative ASP service (developed digital signature tools and processes for the largest state-owned French bank). • Internal security consultant for web services integration within France Telecom	Aug. 2001 – Dec. 2003 FT

5. **Certifications or professional registrations**
SCEA: Sun Microsystems Certified Enterprise Architect for the Java 2 Platform, Enterprise Edition

6. **Current membership in professional organizations**
   ACM Professional member

7. **Honors and awards**
   Computer Science and Engineering Dean's Grant, Florida Atlantic University, 2004 - 2006.
   Graduate Student Travel Grant, Florida Atlantic University, September 2006 and 2007

8. **Service activities**
   Currently serving as a Faculty senator
   GSU ACM Student chapter advisor

9. Most recent publications and presentations

N. Delessy and E. B. Fernandez, "A pattern-driven security process for SOA applications", short paper in *Procs. of the ACM Symposium on Applied Computing,* Fortaleza, Ceara, Brazil, March 16-20, 2008.

N. Delessy and E. B. Fernandez, "A pattern-driven security process for SOA applications", *Procs. of the 3rd Int. Conf. on Availability, Reliability, and Security (ARES 2008*), Barcelona, Spain, March 4-7, 2008, 416-421.

N. Delessy. E.B.Fernandez, M.M. Larrondo-Petrie, and J. Wu, "Patterns for access control in distributed systems", *Procs. of the 14th Pattern Languages of Programs Conference (PLoP2007),* Monticello, Illinois, USA, September 5-8, 2007.

N. Delessy and E.B.Fernandez, "Adapting web services security standards for mobile and wireless environments", in "*Advances in Web and Network Technologies, and Information Management*", K. Chen-Chuan Chang, W. Wang, L. Chen, C.A.Ellis, C-H Hsu, A.C.Tsoi, and H. Wang (Eds.), Springer LNCS 4537, 624-633.

Procs. of the 2007 International Workshop on Application and Security service in Web and pervAsive eNvironments (ASWAN 2007), June 16-18, 2007, HuangShan (Yellow Mountain),China .

N. Delessy, E.B.Fernandez, and M.M. Larrondo-Petrie, "A pattern language for identity management", *Procs. of the 2nd IEEE Int. Multiconference on Computing in the Global Information Technology (ICCGI 2007),* March 4-9, Guadeloupe, French Caribbean.

E.B.Fernandez, N.A.Delessy, and M.M. Larrondo-Petrie, "Patterns for web services security", in "*Best Practices and Methodologies in Service-Oriented Architectures",* L. A. Skar and A.A.Bjerkestrand (Eds.), 29-39, part of OOPSLA 2006, the *21st Int. Conf. on Object- Oriented Programming, Systems, Languages, and Applications*, Portland,OR, ACM, October 22-26.

E.B.Fernandez and N. Delessy, ""Using patterns to understand and compare web services security products and standards", *Proceedings of the IEEE Int. Conference on Web Applications and Services (ICIW'06*), Guadeloupe, February 2006.

10. Most recent professional development activities

Participated as a judge in the 2009 HBCU-UP National Research Conference, Oct. 29 - Nov. 1, 2009, Washington, DC
Participated in Louisiana Academy of Sciences, February 26, 2011; Chaired computer Science session; Judged Computer Science Oral Presentations

Faculty Vitae

1. Name: **Dr. Brenda Miles**

2. Education

Degree	Field	Institution	Date
B.S	Mathematics	Grambling State University	1970
M. S	Math Education	Louisiana State University	1982
Ph. D.	CAM/Computer Science	Louisiana Tech University	2005

3. Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

Institution	Rank	Title	When Full time (FT)or Part Time (PT)
Southern University-Shreveport LA	Instructor	Program Director/ Coordinator	1980-1995(FT)
Panola Jr. College Carthage, TX	Adjunct Instructor		1992-1994 (PT)
Grambling State University	Assistant Professor		1995-Present

4. Non-academic experience – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

Company	Title	Brief Description of Position	When Full time (FT)or Part Time (PT)
Rockwell International-Rocketdyne Division Canoga Park CA	Engineer-	Mathematician/Computer Programmer Analyst. Develop computer applications to support design and analysis activity of engineering group.	1972 – 1973 (FT)
Wiley University Marshall TX	Manager and Programmer/ System Analyst	Management Information Systems (MIS). Over MIS personnel and design and implement a DBMS for the university's computer center.	1979 - 1980
Tutorville Computer Resources.	Owner. Database Administrator	Retail sell of computers and periperipheral devices; Contracts: Networks and custom design software applications for state and local government agencies and private businesses.	1991 – 1995

5. Certifications or professional registrations
   None

6. Current membership in professional organizations

   ACM, MSDNAA E-Academy License Management System (ELMS), IBM Academic Initiative.

7. Honors and awards

   Appointment: IBM-DB2 Scholar.

8. Service activities (within and outside of the institution)

   - CHAIR: Data Mining II session of the 7th ITNG-2010, International Conference on Information Technology-New Generations.
   - CHAIR: Web Technologies and Data Mining of the ITNG 2009, 6th International Conference on Information Technology-New Generations.
   - CHAIR/Organizer-Program Coordinator: The *16th -17th-18th Phillip L. Young Science Research Symposium,* sponsored under the auspices of the Grambling State *u*niversity College of Arts and Sciences.
   - COORDINATOR of Advisement: Computer Science Program majors.
   - CHAIR: Data Analysis Committee (Department of Math and Computer Science).
   - FACULTY SPONSOR: Mathematics & Computer Science Club.

9. Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation.

   "The Bipartite Clique-A Topological Paradigm For Web User Search Customization", Proceedings of the43rd Annual Association for Computing Machinery Southeast Conference, Vol. 1 or 2 p. 1-90, August 2005. Brenda Miles & Vir Phoha.

10. Briefly list the most recent professional development activities
    - CHAIR: Data Mining II session of the 7th ITNG-2010, International Conference on Information Technology-New Generations.
      CHAIR: Web Technologies and Data Mining of the ITNG 2009, 6th International Conference on Information Technology-New Generations.
      Dept. Math & Computer Science – Guest Lecture Series. Lecturers from NIH, DOD, Chevron, NSF, MIT, etc.

Faculty Vitae

1. **Name:** Dr. Djamel Bouchaffra

1. **Education**

Degree	Field	Institution	Date
DES	Mathematics	Algiers University of Science	1984
DEA	Computer Science	Grenoble University	1986
Ph. D.	Computer Science	Grenoble University	1992
Post-doctoral	Pattern Recognition	University of Quebec	1995

2. **Academic** experience – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

Institution	Rank	Title	When Full time (FT)or Part Time (PT)
Grenoble University	Lecture	-	1987-1991
Dijon University	Ast. Professor	-	1991-1993
Oakland University (MI)	Assistant Professor	-	2000-2007 - FT
Grambling State University	Associate Professor	-	2007 – 2011 -FT

3. **Non**-academic experience – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

Company	Title	Brief Description of Position	When Full time (FT)or Part Time (PT)
Center for Excellence for Document Analysis and Recognition, NY	Research Scientist	• Research & Development	1995-2000)

4. **Certifications** or professional registrations
   - IEEE Senior Member,
5. **Current** membership in professional organizations
   IEEE
6. **Honors** and awards
   Editorial board member for several journals such as: *Journal of Pattern Recognition* published by Elsevier, (starting May 2005) and *Advanced Artificial Intelligence*.

7. **Service** activities (within and outside of the institution)
   Curricular materials:

- Preparation of Powerpoint slides for the textbook titled “Pattern Classification” authored by Duda, Hart and Stork made public at: http://rii.ricoh.com/~stork/DHS.html#anchor12255486
- Preparation of websites for all my courses: http://www.djamel-bouchaffra.info

8. **Briefly** list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation
   1. D. Bouchaffra, “Conformation-based Hidden Markov Models: Application to Human Face Identification”, in: IEEE Transactions on Neural Networks, vol. 21, no. 4, pp. 597-608, 2010.
   2. D. Bouchaffra, “Embedding HMM-based Models in a Euclidean Space: The Topological Hidden Markov Models”, in: Pattern Recognition, Volume 43, Issue 7, July 2010, Pages 2590-2607.
   3. D. Bouchaffra, “Topological Dynamic Bayesian Networks: Application to Facial Aging”, (Oral Presentation) in: The Proceedings of the IEEE AMFG (Analysis and Modeling of Faces and Gestures) Workshop in conjunction with CVPR (Computer Vision and Pattern Recognition), San Francisco, June 13-18, 2010.
   4. D. Bouchaffra, “Topological Dynamic Bayesian Networks”, in: The Proceedings of: The 20th IEEE International Conference on Pattern Recognition (ICPR), August 23-26, Istanbul, Turkey 2010.
   5. D. Bouchaffra, “Embedding HMM's-based Models in a Euclidean Space: The Topological Hidden Markov Models”, Accepted as oral presentation in The 19th IEEE International Conference on Pattern Recognition (ICPR), Tampa Convention Center, Florida, Dec. 8-11, 2008.
   6. P. Nicholls, A. Amira and D. Bouchaffra, “A Statistical Multiresolution Approach for Face Recognition using Structural Hidden Markov Models”, in: EURASIP: Journal on Advances in Signal Processing: in Special Issue: "Advanced Signal Processing and Pattern Recognition Methods for Biometrics", Publisher Hindawi Corporation, Volume 2008
   7. 7. D. Bouchaffra and A. Amira, “Structural Hidden Markov Models for Biometrics: Fusion of Face and Fingerprint”, in: Special Issue of Pattern Recognition Journal (Elsevier), “Feature Extraction and Machine Learning for Robust Multimodal Biometrics”, Volume 41/3 pp 852-867, 2008.
   8. 8. D. Bouchaffra and J. Tan, “Structural Hidden Markov Models using a Stochastic Context-Free Grammar”, in: Control and Intelligent Systems, Vol. 35, No. 3, 2007, ACTA Press.
   9. 9. D. Bouchaffra and J. Tan, “Structural Hidden Markov Models using a Relation of Equivalence: Application to Automotive Designs”, in: Data Mining and Knowledge Discovery Journal, Volume 12: 1, Springer-V, 2006.
   10. 10. D. Bouchaffra and J. Tan, “Introduction to Structural Hidden Markov Models: Application to Handwritten Numeral Recognition”, in: Intelligent Data Analysis Journal, IDA, Editor-in-Chief: A. Famili, Vol., 10:1, IOS Press, 2006.
   11. 11. Djamel Bouchaffra and Jun Tan, “Protein Fold Recognition using a Structural Hidden Markov Model”, in: The Proceedings of: The 18th International Conference on Pattern Recognition (ICPR), Hong Kong, 20-24 August 2006.
   12. 12. F. Pernkopf and D. Bouchaffra, “Genetic-based EM Algorithm For Learning Gaussian Mixture Model”, in: IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 27, no. 8, pp. 1344-1348, Aug. 2005.
   13. 13. D. Bouchaffra and J. Tan, “Introduction to the Concept of Structural Hidden Markov Model: Application to Mining Customers’ Preferences for Automotive Designs”, in: Proceedings of the 17th International Conference on Pattern Recognition, Cambridge, UK, 23-26-07-2004.

9. **Briefly** list the most recent professional development activities
   - Supervised Dr. Jun Tan during his Ph.D. and Dr F. Pernkopf during his postdoctoral position

Appendix C - Equipment

CH276

This lab contains 22 Dell Optiplex 755 computers in three slightly different configurations. This lab also includes one laser printer, two security cameras, and one Dell Dimension 8100 computer that hosts MSDN Academic Alliance free software for students. Students use this Dimension 8100 computer to burn their own copy of Microsoft software CDs and DVDs.

Computers:

Dell Optiplex 755 computer, "Version 1", quantity 6
Operating System: Windows 7 Enterprise, 32-bit
CPU: Intel Core2 Duo 2.33 GHz (E6550)
RAM: 3 GB
Network Connection: Gigabit
Video Card: ATI Radeon HD 2400 Pro
Monitor: 19-inch flat panel
Hard Drive: 160 GB SATA
Optical: DVD/CD-RW

Dell Optiplex 755 computer, "Version 2", quantity 6
Operating System: Windows 7 Enterprise, 32-bit
CPU: Intel Core2 Duo 2.66 GHz (E6750)
RAM: 3 GB
Network Connection: Gigabit
Video Card: Intel Q35 Express Chipset Family
Monitor: 19-inch flat panel
Hard Drive: 160 GB SATA
Optical: DVD/CD-RW

Dell Optiplex 755 computer, "Version 3", quantity 10
Operating System: Windows 7 Enterprise, 32-bit
CPU: Intel Core2 Duo 3.16 GHz (E8550)
RAM: 4 GB
Network Connection: Gigabit
Video Card: ATI Radeon HD 2400 Pro
Monitor: 19-inch flat panel
Hard Drive: 160 GB SATA
Optical: DVD/CD-RW

Installed Software (on all 755s):

Java Netbeans 6.9.1
Java SE Development Kit 6.22
Microsoft Visual Studio 2010
Microsoft Office Enterprise 2007
Mozilla Firefox 3.6.13

Panda Cloud Antivirus
Revo Uninstaller 1.91
CCleaner
Print Manager Plus—Client
Adobe Reader X
Adobe Flash Player 10
Adobe Shockwave Player 11.5
Apple Quicktime

Additional Installed Software:

2 computers have MATLAB 7.11

Printer:

HP LaserJet 4000n

CH277
This lab contains 28 identical computers, one laser printer, and two security cameras.

Computers:

Dell Optiplex 780
Operating System: Windows 7 Professional, 32-bit
CPU: Intel Core2 Duo 3.16 GHz (E8500)
RAM: 4 GB
Network Connection: Gigabit
Video Card: ATI Radeon HD 3450
Monitor: 19-inch flat panel
Hard Drive: 250 GB SATA
Optical: DVD +/- RW

Installed Software (on all 780s):

Java Netbeans 6.9.1
Java SE Development Kit 6.23
Microsoft Visual Studio 2010
Microsoft Office Visio Professional 2010
Microsoft Office Enterprise 2007
Mozilla Firefox 3.6.13
Panda Cloud Antivirus
Revo Uninstaller 1.91
CCleaner
Print Manager Plus—Client
Adobe Reader X
Adobe Flash Player 10

Adobe Shockwave Player 11.5
Apple Quicktime
Roxio Creator
Cyberlink Power DVD

Printer:

HP LaserJet 4000n

CH286

This lab contains 11 Dell Optiplex 760 computers, two Dell Optiplex 780 computers, one Dell Optiplex 755 computer, four Dell Optiplex GX620 computers, two printers, and one security camera.

Computers:

Dell Optiplex 760, quantity 11
Operating System: Windows 7 Enterprise, 32-bit
CPU: Intel Core2 Duo 3.0 GHz (E8400)
RAM: 4 GB
Network Connection: Gigabit
Video Card: ATI Radeon HD 3400
Monitor: 19-inch flat panel
Hard Drive: 80 GB SATA
Optical: DVD +/- RW

Dell Optiplex 755, quantity 1
Operating System: Windows 7 Enterprise, 32-bit
CPU: Intel Core2 Duo 2.66 GHz (E6750)
RAM: 3 GB
Network Connection: Gigabit
Video Card: ATI Radeon HD 3400
Monitor: 19-inch flat panel
Hard Drive: 80 GB SATA
Optical: DVD/CDRW

Dell Optiplex 780, quantity 2
Operating System: Windows 7 Professional, 32-bit
CPU: Intel Core2 Duo 3.16 GHz (E8500)
RAM: 4 GB
Network Connection: Gigabit
Video Card: ATI Radeon HD 3450
Monitor: 19-inch flat panel
Hard Drive: 250 GB SATA
Optical: DVD +/- RW

Installed Software (on 780s, 760s and 755):

Java Netbeans 6.9.1
Java SE Development Kit 6.23
Microsoft Visual Studio 2010
Microsoft Office Visio Professional 2007
Microsoft Office Enterprise 2007
Oracle VM VirtualBox 3.2.12
doPDF
Mozilla Firefox 3.6.13
Panda Cloud Antivirus
Revo Uninstaller 1.91
CCleaner
Print Manager Plus—Client
Adobe Reader X
Adobe Flash Player 10
Adobe Shockwave Player 11.5
Apple Quicktime
Roxio Creator
Cyberlink Power DVD

Linux Installs

Dell Optiplex 620 computer, quantity 2

Operating System:	Ubuntu Server 10.04.1, 64-bit
CPU:	Intel PentiumD 2.80 GHz
RAM:	3 GB
Network Connection:	Gigabit
Video Card:	ATI Radeon X600 Series
Monitor:	19-inch flat panel
Hard Drive:	160 GB SATA
Optical:	DVD +/- RW

Installed Software (on two Ubuntu Servers)

Ubuntu Server 10.04.1, 64-bit
Glassfish Application Server 3.0.1 (build 22) with Sun Java platform, Enterprise Edition
MySQL Server 5.1.41-3ubuntu12.9
MySQL Connector J 5.1.6
Apache HTTP Server 2.2.17 with mod_jk module 1.2.31
Sun Java Platform, Standard Edition, 1.6.0_22
Apache PHP 5.3.2

Dell Optiplex 620 computer, quantity 2

Operating System:	Ubuntu Desktop 10.04.1, 32-bit
CPU:	Intel PentiumD 2.80 GHz
RAM:	3 GB
Network Connection:	Gigabit
Video Card:	ATI Radeon X600 Series
Monitor:	19-inch flat panel
Hard Drive:	160 GB SATA
Optical:	DVD +/- RW

Installed Software (on two Ubuntu Desktops)

Ubuntu Desktop 10.4.01, 32-bit

Printers:	HP LaserJet 4000n
	HP Color LaserJet 4600n

CH283

The System Administrator uses this room to support and maintain the departmental equipment. The security center and servers are also housed here.

Server:	Dell PowerEdge 1900
Operating System:	Windows Server 2003 R2, Enterprise Edition, SP2
CPU:	Intel Xeon 2.00 GHz (E5335, 8 cores)
RAM:	8 GB

Backup Server:	Dell PowerEdge 4400
Operating System:	Windows Server 2003, Enterprise Edition, SP2
CPU:	Pentium III Xeon 993 MHz (2 cores)
RAM:	2 GB

Appendix D – Institutional Summary

Programs are requested to provide the following information.

1. The Institution

a. Name and address of the institution

Grambling State University
403 Main Street
Grambling, Louisiana 71245

b. Name and title of the chief executive officer of the institution

Frank G. Pogue, Ph.D.
President

c. Name and title of the person submitting the self-study report.

Dr. Connie Walton, Provost & Vice President for Academic Affairs

d. Name the organizations by which the institution is now accredited, and the dates of the initial and most recent accreditation evaluations.

Grambling State University
The Commission on Colleges of the Southern Association of Colleges and Schools (SACS)
May 1, 2010

2. Type of Control

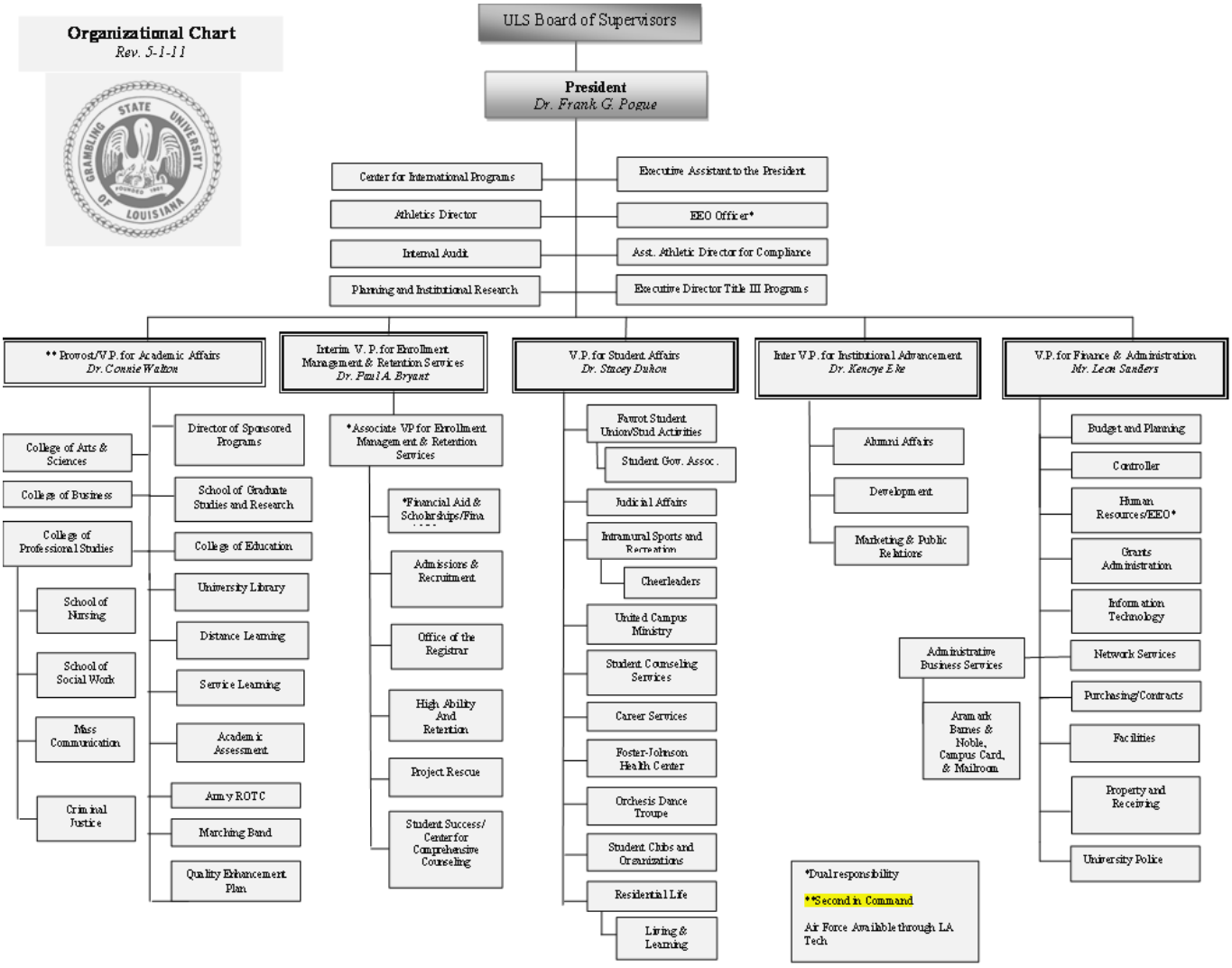
Description of the type of managerial control of the institution, e.g., private-non-profit, private-other, denominational, state, federal, public-other, etc

Grambling State University is a public-state institution

3. Educational Unit

Describe the educational unit in which the program is located including the administrative chain of responsibility from the individual responsible for the program to the chief executive officer of the institution. Include names and titles. An organization chart may be included.

Organization Chart (Grambling State University)



4. Academic Support Units

List the names and titles of the individuals responsible for each of the units that teach courses required by the program being evaluated, e.g., mathematics, physics, etc.

Mathematics – Dr. F. Semwogerere
Physics – Dr. A. Strong
Biology – Dr. F. Ifeanyi
Chemistry - **Dr. Frank Ohene**
English – Dr. Evelyn Wynn
Foreign Languages - Dr. Evelyn Wynn, Interim Dean
Arts – Dr. Donna F. McGee
Economics - Dr. Ogbonnaya J. Nwoha

5. Non-academic Support Units

List the names and titles of the individuals responsible for each of the units that provide non-academic support to the program being evaluated, e.g., library, computing facilities, placement, tutoring, etc.

Grambling State University
Information Technology Center-
Mr. Winfred Jones, Associate Vice President

Our mission in the Information Technology Center is to provide service by organizing, implementing and managing information technology solutions based on the needs of the university and community. The Information Technology Center is also responsible for supporting computing, communications, networks and institutional data for the entire university.

The Information Technology Center is located in Jacob T. Stewart building on the campus of Grambling State University. The center is located on the first floor room 139 and is comprised of the following six supportive units that provide technological service to academic, administrative and student service departments' campus wide:

Administrative Computing: supports the ERP system (SunGard Banner) and all of the administrative computing support requirements.

Information Technology Training Center: provides training support for all faculty, staff and administrators on a variety of software applications as well as training on the ERP system.

Network Services: provide support to the entire university supporting desktop applications, networking administration, campus infrastructure, CATV support and wireless applications.

Telecommunication: provides support to over 3500 phone extensions that include attendant support and a sophisticated cable infrastructure for the entire university.

Computing Services: provide support to the major production systems and daily operation necessary to ensure reliable and stable service to all constituents both on and off-campus within the university.

Student Technology Center: a support unit funded and managed by students providing state-of-the art information technology resources to the entire student body.

Office of Planning and Institutional Research
Ms. Nettie Daniel, Director

The University uses assessment data to improve programs. The Office of Planning and Institutional Research at Grambling State University Collects data and submits reports to the Board Of Regents (governing board) that addresses student enrollment, retention rates as well as the graduation rate. This office collects data on first time full-time freshmen each semester. These individuals are tracked for six years and a 3year/6year graduation rate is calculated. The

tracking is continued and a ten-year graduation rate is calculated. The retention rate is calculated by using the State-wide Student Profile Report. This report is submitted to the Board of Regents in the ASCII format. The Board of Regents then calculates the retention rate for each state Institution. The Office of Planning and Institutional Research also coordinates the assessment of programs.

Tutorial Services

Housed in the College of Arts & Sciences is the *Curriculum Resource and STEM Academic Skills Center*. This Center is manned by a university staff person (Mrs. Jacqueline Singleton), who serves as the supervisor over activities. The Center focus is student success. It facilitates faculty tutorial services that focus on gate-keeper courses (Calculus, General Chemistry, General Physics, and Precalculus). Housed in this area are self-guided tutorial titles that can be used to supplement information covered in the lecture. These titles are dedicated to chemistry, physics, biology, and mathematics. Additionally, the Center provides study skills enhancement tips to the student in the form of brochures, workshops, and a study skills assessment test (E-LASSI).

The *LAMP* (Louisiana Alliance for Minority Participation) program is housed in the College of Arts & Sciences (Dr. Pia Alburquerque serves as the campus coordinator). It has a goal of increasing the number of science, mathematics, and engineering technology degrees. As a result, it sponsors activities that focus on increasing the interest of students in SMET areas. The LAMP program sponsors tutorials, travel to conferences, and GRE preparation Workshops. It also provides awards to SMET students that can be used for purchase of textbooks.

Center for Mathematical Achievement in Science & Technology
Ms. Rashon Carruthers

This center has a goal of increasing the success of science, engineering technology, and mathematics majors. It sponsors professional development activities for faculty, provides scholarships for students, and student support activities.

Office of Career Planning & Placement
Mr. Johnny Patterson-Director

The Office of Career Planning & Placement at Grambling State University (GSU) is a centralized service for the entire campus. Located in Room 130 of the Jacob T. Stewart Building, the office provides services for seniors, irrespective of major, and former students who are seeking employment or information concerning graduate study inclusive of career planning for all students (undergraduate/graduate). There is currently no charge for this service to students, alumni or employers. The office also sponsors a series of employee expectation seminars held each semester in addition to hosting the Annual Career Opportunities Conference held each fall semester along with the Fall and Spring Teachers Fair. Information regarding employment opportunities is published periodically in the Career Placement Bulletin, which is distributed to each department. This bulletin is also distributed in strategic locations throughout the campus. Employment information may also be accessed electronically through the University's web site (www.gram.edu) from the Student Life link of the main page and clicking on the sub-category of Career Placement. Students may sign-up in the Placement Center for appointments with various employers. Interviews begin when listed in the Career Placement

Bulletin. Sign-ups for the schedule close at the end of the day prior to the interview. The Placement Office is open from 8:00 am - 5:00 pm Monday - Friday.

6. Credit Unit

It is assumed that one semester or quarter credit normally represents one class hour or three laboratory hours per week. One academic year normally represents at least 28 weeks of classes, exclusive of final examinations. If other standards are used for this program, the differences should be indicated.

None

Appendix – F
Forms (Application and Survey)

- Graduate Application
- Academic Advising Form
- Demographic data and Academic Evaluation Form
- Survey of Graduating Seniors Form
- Course Assessment Form
- Employer Survey Form
- PEO Survey Form
- SO survey Form

GRAMBLING STATE UNIVERSITY
GRAMBLING, LOUISIANA

APPLICATION FOR UNDERGRADUATE DEGRE _____
Date

PLEASE PRINT OR TYPE NAME IN FULL. YOUR DIPLOMA WILL BE ORDERED AS YOUR NAME IS SPELLED ON THIS FORM. IF YOU HAVE AN UNUSUAL NAME TO PRONOUNCE, PLEASE SUBMIT A PRONUNCIATION GUIDE TO THE DEAN OF YOUR COLLEGE TO INSURE THAT YOUR NAME IS PRONOUNCED CORRECTLY AT COMMENCEMENT.

_____

First Middle
last

Major:_____ Concentration: ____ _____
Minor: _____
This application applies to this semester only. If you do not graduate, you **must reapply**.

I expect to complete the requirements for the degree of (Check one)
☐ A.A. ☐ A.S. ☐ B.A. ☐ B.S. ☐ B.S.N. ☐ B.P.A.

In the College/School of ☐ Business ☐ Education ☐ Liberal Arts ☐ Arts & Sciences ☐ Nursing ☐ Social Work

at the end of the (Check one) ☐ Fal1 ☐ Spring ☐ Summer 200-

Students, who are currently enrolled in another college or university, tease fill in the following:

College or University: _____
(A COMPLETE OFFICIAL TRANSCRIPT MUST BE IN THE REGISTRAR'S OFFICE AT THE SAME TIME GRADES ARE DUE.)

Date course will be completed _____.
Courses for which registered: (**Do not list courses for which registered at GSU**)

Course No.	Sem. Hrs. Credit	Description
__	_____	_____

I certify that the degree, major, concentration, and minor shown above are listed as they appear in the _____Grambling State University catalog,
Year
under which the student is eligible to receive a degree.

_____ hours are required for the degree.

_____
Signature of Department Head Date

I accept the responsibility for understanding and meeting all requirements for my degree.

_____.
Signature of Candidate

_____
Social Security Number

LOCAL ADDRESS OF CANDIDATE:

_____
Number and Street

_____
City State Zip Code

HOME ADDRESS OF CANDIDATE:

_____ _____

Signature of Academic Dean Date Number and Street

_____ _____

City State Zip Code

Signature of Vice President for Academic Affairs Date _____

local Phone Number Home Phone Number

WHITE - REGISTRAR'S OFFICE YELLOW - DEAN PINK - DEPARTMENT HEAD GOLD. STUDENT

Academic Advising Form

GRAMBLING STATE UNIVERSITY
ACADEMIC ADVISING CONTRACT

SEMESTER YEAR

Name: *ID #:*

Local Address: *Permanent Address:*

Telephone #:

Classification: *Major:*

The student and the advisor should maintain a copy of this contract.

CRN (Optional)	SUBJECT COURSE	COURSE TITLE	CREDIT HOURS
		Total Credit Hours:	

Advisor Notes:

Student Signature Date

Faculty Advisor Signature Date

Amendments to Contract: *(Any amendments to this contract must be signed by the student and the advisor.)*

I,_____, shall inform my advisor on any change to my course schedule within 24 hours of the change.

Demographic Data and Other Information

STUDENT NAME: _____
_____
Last
First
Middle Initial

SSN: _____ **Advisor** _____
_____

Permanent Address: _____
_____
_____
Street/PO City
State
Zip

Local Address: _____
_____
_____
Street/PO
City State
Zip

Home & Local Phone No's. _____ E-mail_____ _____

Admission Status: _____ Entry Date: _____
_____

Major: _____ Minor: _____
_____Transfer Credits (If any): _____
CO-OP EXPERIENCE (If any):

Sem/Year _____Company _____Sem/Year _____
_____Company _____

Sem/Year _____Company _____Sem/Year _____
___Company _____

REQUIREMENTS FOR GRADUATION AND OTHER INFORMATION

The Bachelor of Science degree will be awarded upon the completion of requirements of the appropriate curriculum in the Department of Mathematics and Computer Science. **Some important points to remember are:**

1. Please receive a curriculum sheet from your advisor and follow the curriculum sheet closely till you graduate from the program. Pay special attention to the prerequisites for each course.
2. Have no more than one grade of "D" in major courses unless approved by the Department Head and the Dean.
3. If you plan to take a course, that is required for graduation, at some other university, that university should be regionally accredited. It is required that you submit all the relevant documents and take prior written approval from your Advisor and Department Head before enrolling in a course at other university. These documents include proof of accreditation of the university, course syllabi, and other relevant material. Please know that a 400 level course can be substituted only with a 400 level course, a 300 level with a 300 level course and so on. **Please read pages 33-34 in GSU General Catalog 2003-05 for additional university regulations and page 73 for the College of Science & Technology requirements.**
4. You can take relevant courses at LA Tech under the auspices of the ICP program.
5. The student's advisor must approve all electives.
6. Earn a passing score on the Rising Junior Examination (GET 300).
7. All majors and minors of Mathematics and Computer Science Department, participating in the CO-OP Program, will not be given any credit towards graduation.
8. If you plan to go for summer internship/s during your tenure at GSU please inform your advisor. Your advisor will provide you important evaluation forms and other information.

The Department requirements for the program have been explained to me and I agree to comply with them.

Name/Signature: _____ (Student) Date: _____

Name/Signature: _____ (Advisor)
Date: _____

Seme	Gr	Substit	Course Nur	Course Name		Prerequis	Notes
FRESHMAN							
			BIOL 113	Principles of Biology -I	3		
			BIOL 115	Principles of Biology – I Lab	1		
			FYE 101	First Year Experience I	1		
			FYE 102	First Year Experience II	1		
			ENG 101	Freshman Composition	3		
			ENG 102	Freshman Composition	3		
			HIST 101	History of Western Civilization I	3		
			HIST 104	Modern World History	3		
			MATH 153[1]	Calculus I	3	MATH148 or AC (Math) 22 or abo	

			MATH 154	Calculus II	3	MATH 153	
			CS 110	Computer Science I	3		
			CS 120	Computer Science II	3	CS 110	
					30		
SOPHOMORE							
			GET 300	Rising Junior Exam	0		
			MATH 273	Probability and Statistics I	3	MATH 131/147	
			ENG 200	World Literature I	3		
			ENG 207	Intro. to Technical Writing	3		
			PHYS 153	General Physics I	3		
			PHYS 153L	General Physics Laboratory	1		
			ST 212	Fund. of Public Speaking	3		
			MATH 201	Calculus III	3	MATH 154	
			CS 210	Discrete Structures	3	CS 110	
			CS 225	Comp. Org. & Assembly Language	3	CS 120	
			PA 201	Ethics for Public Service	3		
			CS 235	Data Structures	3	CS 120, CS 210	
					31		
JUNIOR							
			PHYS 154	General Physics II	3		
			PHYS 154L	General Physics Laboratory	1		
			SOC 101	Introduction to Social Science	3		
			MATH 309	Intro. to Linear Algebra	3	MATH 154	
			MATH 421	Numerical Methods I	3	MATH 201	
			MATH 274	Probability and Statistics II	3	STAT273	
			CS 310	Software Engineering	3	CS 235	
			CS 320	Database Management Systems	3	CS 235	
			CS 336	Programming Language Concepts	3	CS235	
			CS 345	Operating Systems	3	CS225 and CS23	
			CS 360	Design & Analysis of Algorithms	3	CS235	
					31		

Seme	**Gr**	**Substitu**	**Course Nu**	**Course Name**	**Hrs.**	**Prerequisite**	**Note**
SENIOR							
			ART 210	Intro. To Fine & Performing Arts	3		
			ECON 201	Principles of Economics	3		
			CHEM 101	Environmental chemistry	3		
			CS 405	Software Development	3	CS310	
			CS 414	Computer Architecture	3	CS345	
			CS 419	Computer Networks	3	CS345	
			CS 424	Adv. Programming Techniques	3	CS 235	
			CS 4xx	Major Elective	3	See list	
			CS 4xx	Major Elective	3	See list	
				Foreign language	3		
				Foreign Language	3		
					33		

				Total	**125**		

1. Students deficient in Math are required to take MATH147/148 before taking MATH153.

COMPUTER SCIENCE ELECTIVES

Course N	Course Name	Hrs.	Prerequisites
CS426	Artificial Intelligence	3	CS 235
CS428	Computer Graphics	3	CS 235
CS440	Computer Performance Evaluation	3	CS345, MATH 274
CS445	Modeling and Simulation	3	CS 235, MATH 274
CS 450	Parallel Processing	3	CS 235
CS454	Theory of Computing	3	CS 235
CS456	Special Topics in Computer Science	3	CS235
CS459	Special Topics in Database Management	3	CS310, CS320, CS336, CS345
CS462	Special Topics in Software Engineering	3	CS320

Transfer Credits

University	Course Name	**Course Number**	**Equivalent GSU Course Name and Number**	**Grade**	**Hours**	**Approved Yes/No**

Courses taken which are not required for graduation

Semester	**Grade**	**Course Name**	**Course Number**	**Hrs.**	**Remarks**

RECOMMENDATIONS:

The candidate _____has satisfied all the requirements based on the record and pending outcome of the currently enrolled courses during Fall/Spring/Summer _____ semester. Upon completion of the semester successfully he/she can be recommended for graduation in this semester.

Academic Advisor

_____ _____

Date_____

Name Signature

Department of Mathematics and Computer Science
Grambling State University

SURVEY OF GRADUATING SENIORS

1. Name: _____
Last First MIddle

2. Social Security Number: _____xxxxxxx_____

3. Sex: _____

4. Major area of study/Concentration: ___Computer Science_____

5. Minor area of study: _____

6. Graduation Date: _____

7. Home Address: _____
(Point of contact):

8. Phone Number(Cell/Home/Business): _____
(Point of contact)

9. Business Address: _____

10. E-Mail Address: _____

11. Employer: _____

12. Position _____

13. Are you planning to go to graduate school? If yes, please give the name and address of the school.

14. Did you receive any type of scholarship/assistantship for your undergraduate study?

Yes _____ No _____ If Yes: The Amount of Scholarship: $_____

Name of the scholarship: _____ Semester/Year: _____

15. What computer science and math courses did you find most beneficial during your stay at GSU? Please list the courses in order of preference.

a) _____b) _____c) _____

d) _____e) _____f) _____

16. Did you go for any internship during your tenure at GSU? If so, please list all of them indicating the name of company, its location and the period:

(i) _____

(ii) _____

(iii) _____

17. Did you participate in any grant program? Please name the program in which you participated. Please also give the name of your mentor.

18. What are your future plans (say over a period of 5 to 7 years)?

19. Are there any suggestions that you have for the improvement of the Department?

20. May we contact you to assist the Department in its future growth? Please give specific contact information where we can contact you during next 5 years.

21. Date of Graduation: _____

Computer Science Course Assessment – Fall 2010

Course Number: _____ **Course Name:** _____

1. **How well does this course prepare you to identify, formulate, and solve problems using computer science skills?**
   (a) excellent (b) very good (c) satisfactory (d) fair (e) not known (f) not applicable

2. **How well does this course prepare you to analyze and design applications to complete class projects using the complete software cycle?**
   (a) excellent (b) very good (c) satisfactory (d) fair (e) not known (f) not applicable

3. **How well does this course prepare you to work on team projects with team members from other majors?**
   (a) excellent (b) very good (c) satisfactory (d) fair (e) not known (f) not applicable

4. **How well does this course prepare you to develop and document technical procedures?**
   (a) excellent (b) very good (c) satisfactory (d) fair (e) not known (f) not applicable

5. **How well does this course provide you with preparation for effective oral and written communication skills?**
   (a) excellent (b) very good (c) satisfactory (d) fair (e) not known (f) not applicable

6. **How well does this course provide you with sufficient experiences to increase your skill in using Power Point?**
   (a) excellent (b) very good (c) satisfactory (d) fair (e) not known (f) not applicable

7. **How well does this course increase your ability to give descriptive/ comparative technical audio-visual presentations?**
   (a) excellent (b) very good (c) satisfactory (d) fair (e) not known (f) not applicable

8. **How well does this course increase your understanding of Professional and Ethical responsibility?**
   (a) excellent (b) very good (c) satisfactory (d) fair (e) not known (f) not applicable

9. **How well does this course increase your understanding of Ethical codes of professional computer societies?**
   (a) excellent (b) very good (c) satisfactory (d) fair (e) not known (f) not applicable

10. **Are you a student member of one or more computing societies such as ACM, IEEE-CS?**
    (a) Yes (b) No.
    If yes, please specify the name of the societies _____

11. Have you attended any ACM, IEEE-CS or other computer related professional meetings this semester?
(a) Yes (b) No.

If yes, please give the following details about the meetings attended:

Meeting/Conferenc	Place	Date	Activity

12. Have you read any computer science periodicals/journals this semester?
(a) Yes (b) No.
If yes, please give the following details:

Name of the periodical/journal	Issue, Year etc (If you can recall)

Student Comments

Your handwritten comments in response to the following questions will be appreciated. We encourage you to respond to all questions as thoughtfully and constructively as possible. Your comments will be used by the instructor to improve the course. However, you are not required to answer any questions.

Was this class intellectually stimulating? Did it stretch your thinking? _____Yes _____ Why or why not?
What aspects of this class contributed most to your learning?
What aspects of this class detracted from your learning?
What suggestions do you have for improving the class?

Thank you

Employer's Survey For
Graduates of Computer Science Program

Department of Mathematics and Computer Science

Grambling State University
Grambling, LA 71245

Employers Survey

1. Name of the Company/Institution: _____

2. Name of Contact (Optional): _____

3. Email (Optional): _____

4. Phone (Optional): _____

5. Employee's job title: _____

*Please respond to the following questions by rating the following statements. A rating of 4 will indicate that you strongly agree with the statement, while **a 0 will indicate that you strongly disagree** with the statement.*

6. The employee is well-prepared to have a productive career.

4 3 2 1 0

7. The employee is able to adapt to technology advances.

4 3 2 1 0

8. The employee is able to effectively communicate with my peers, customers, supervisors through both written and oral means.

4 3 2 1 0

9. The employee is well-prepared to make well-rounded decisions when faced with social, ethical, and legal issues inherent to the computing field.

4 3 2 1 0

10. What were the *primary strengths* of your employee?

11. What were the ***primary weaknesses*** of your employee?

12. Is your company willing to hire graduates from the Computer Science program from Grambling State University (co-ops or regular positions)?

13. Do you have any suggestions for strengthening our Computer Science/Mathematics curriculum? The current Computer Science and Mathematics curriculum is available on our GSU website: http://www.gram.edu/academics/majors/arts%20and%20sciences/departments/math/curriculum/compsci.php).

Thank you for your response!

Computer Science Program
Program Objectives
Survey

Spring 2011

The Computer Science program at Grambling State University has adopted Five **Program Educational Objectives**. These objectives describe the set of skills that the program has determined that its students should possess within few years of graduation.

Ratings should be on a scale of 0 to 5, with 5 meaning the program's Alumni strongly display the skill, while 0 means there is little evidence to suggest the Alumni possess the skill.

Within a few years of graduation, the alumni of the program are able to:

____Pursue a productive career in any computer-related field

____Pursue graduate studies in computer science and related areas

____Adapt to technology advances by embracing life-long learning and continued professional development

____Effectively communicate with their peers, customers, supervisors through both written and oral means

____Make well-rounded decisions when faced with social, ethical, and legal issues inherent to the computing field.

Computer Science Program
Student Outcome Survey

Spring 2011

The Computer Science program at Grambling State University has adopted Ten **Student Outcomes**. These outcomes codify the set of skills that the program has determined that its students should possess upon graduation from the program.

Ratings should be on a scale of 0 to 5, with 5meaning the program's seniors strongly display the skill, while 0 means there is little evidence to suggest the seniors possess the skill.

The program enables students to achieve, by the time of graduation:

S1. _____apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices

S2. _____analyze a problem and identify and define the computing requirements appropriate to its solution

S3. _____design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs

S4. _____apply design and development principles in the construction of software systems of varying complexity

S5. _____effectively work on a group/individual project

S6. _____understand professional, ethical, legal, security, and social issues and responsibilities

S7. _____communicate effectively with a range of audiences

S8. _____analyze the local and global impact of computing on individuals, organizations, and society

S9. _____recognize the need for and engage in continuing professional development

S10. _____use current techniques, skills, and tools necessary for computing practice

Appendix – G

Statistics

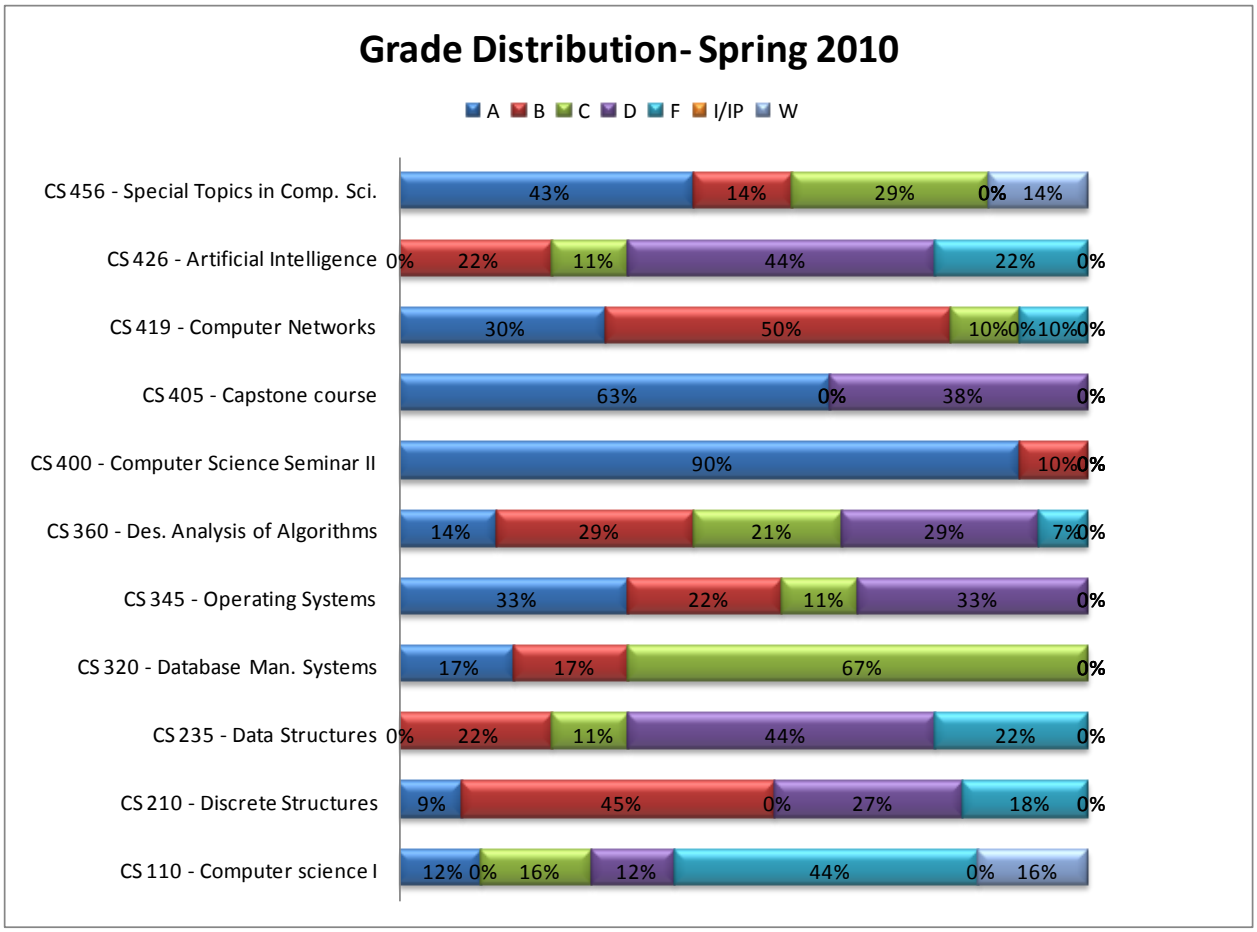
- Grade Distribution
- Course Assessment
- Graduate Student Assessment
- Suggestions from Graduating Seniors
- Preferred classes (2005-2010)
- Preferred classes – Graduating Seniors 2011

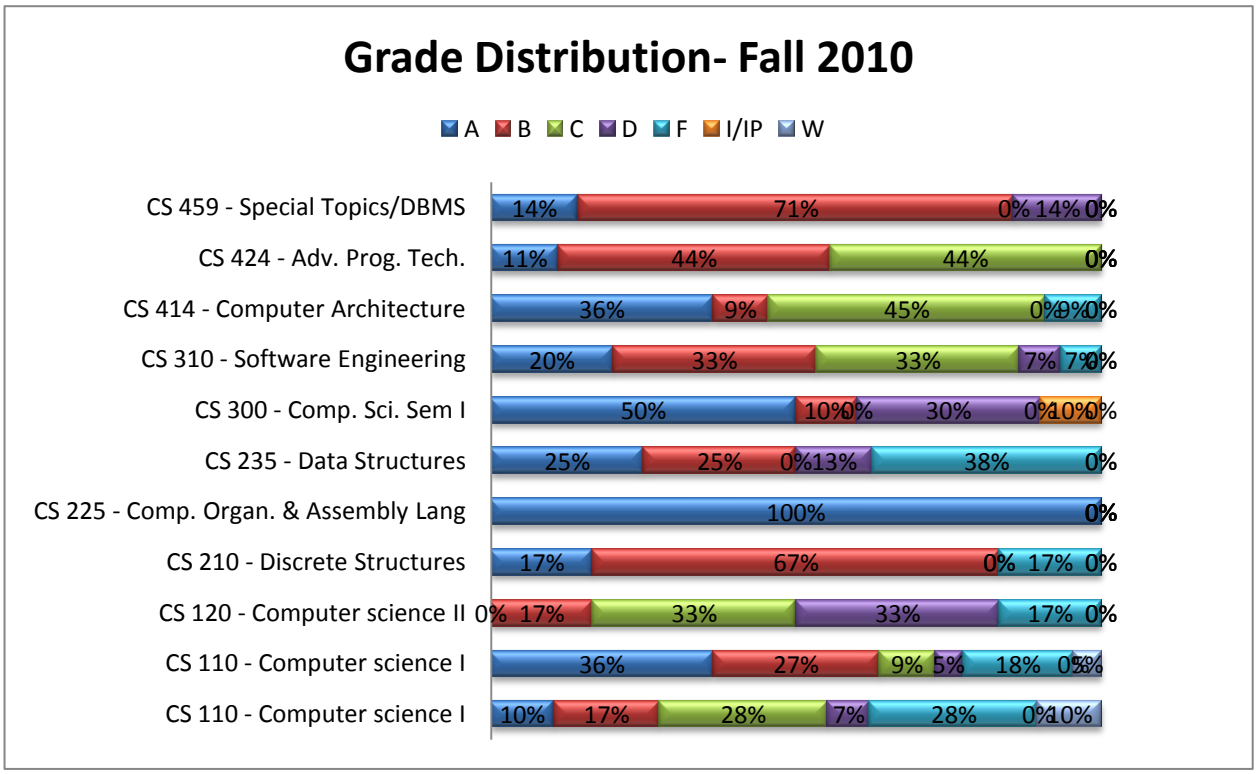
Computer Science
Summary of Course Grade Distribution by Course
Spring 2010, Fall 2010, Spring 2011

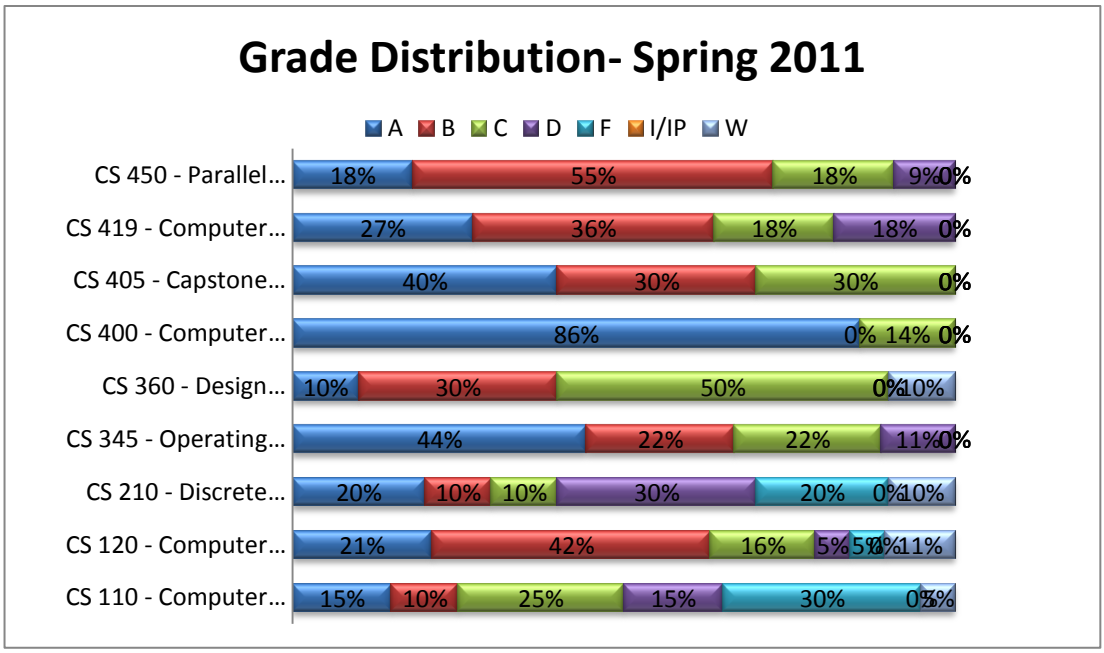
Computer Science Grade Distribution for Spring 2011								
		A	B	C	D	F	I/IP	W
CS 110	Computer science I	3	2	5	3	6	0	1
CS 120	Computer science II	4	8	3	1	1	0	2
CS 210	Discrete Structures	2	1	1	3	2	0	1
CS 345	Operating Systems	4	2	2	1	0	0	0
CS 360	Design analysis & Algorithms	1	3	5	0	0	0	1
CS 400	Computer Science Seminar II	6	0	1	0	0	0	0
CS 405	Capstone Course	4	3	3	0	0	0	0
CS 419	Computer Networks	3	4	2	2	0	0	0
CS 450	Parallel Processing	2	6	2	1	0	0	0

Computer Science Grade Distribution for Spring 2010								
		A	B	C	D	F	I/IP	W
CS 110	Computer science I	3	0	4	3	11	0	4
CS 210	Discrete Structures	1	5	0	3	2	0	0
CS 235	Data Structures	0	2	1	4	2	0	0
CS 320	Database Man. Systems	1	1	4	0	0	0	0
CS 345	Operating Systems	3	2	1	3	0	0	0
CS 360	Des. Analysis of Algorithms	2	4	3	4	1	0	0
CS 400	Computer Science Seminar II	9	1	0	0	0	0	0
CS 405	Capstone course	5	0	0	3	0	0	0
CS 419	Computer Networks	3	5	1	0	1	0	0
CS 426	Artificial Intelligence	0	2	1	4	2	0	0
CS 456	Special Topics in Comp. Sci.	3	1	2	0	0	0	1

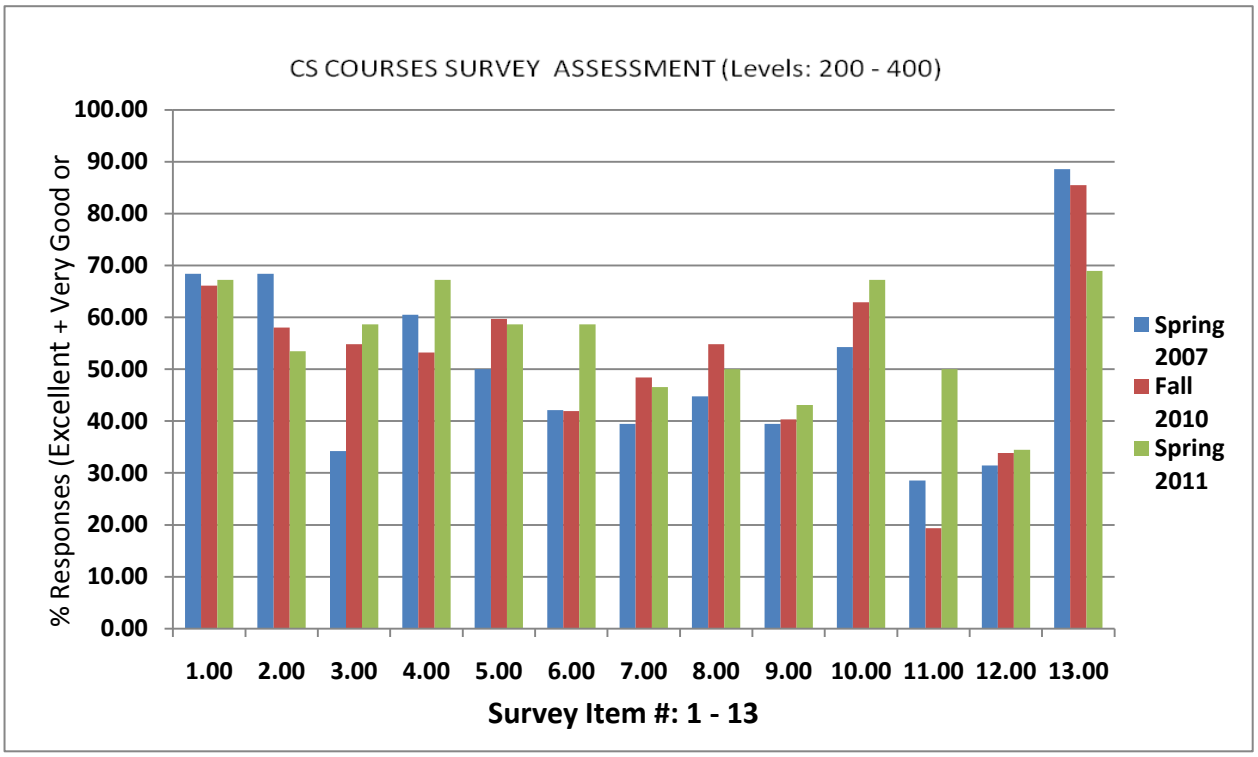
Computer Science Grade Distribution for Fall 2010								
		A	B	C	D	F	I/IP	W
CS 110	Computer science I	3	5	8	2	8	0	3
CS 110	Computer science I	8	6	2	1	4	0	1
CS 120	Computer science II	0	1	2	2	1	0	0
CS 210	Discrete Structures	1	4	0	0	1	0	0
CS 225	Comp. Organ. & Assembly Lang	4	0	0	0	0	0	0
CS 235	Data Structures	2	2	0	1	3	0	0
CS 300	Comp. Sci. Sem I	5	1	0	3	0	1	0
CS 310	Software Engineering	3	5	5	1	1	0	0
CS 414	Computer Architecture	4	1	5	0	1	0	0
CS 424	Adv. Prog. Tech.	1	4	4	0	0	0	0
CS 459	Special Topics/DBMS	1	5	0	1	0	0	0


Grade Distribution- Spring 2010
A B C D F I/IP W
CS 456 - Special Topics in Comp. Sci.
43% 14% 29% 0% 14%
CS 426 - Artificial Intelligence
0% 22% 11% 44% 22% 0%
CS 419 - Computer Networks
30% 50% 10% 0% 10% 0%
CS 405 - Capstone course
63% 0% 38% 0%
CS 400 - Computer Science Seminar II
90% 10% 0%
CS 360 - Des. Analysis of Algorithms
14% 29% 21% 29% 7% 0%
CS 345 - Operating Systems
33% 22% 11% 33% 0%
CS 320 - Database Man. Systems
17% 17% 67% 0%
CS 235 - Data Structures
0% 22% 11% 44% 22% 0%
CS 210 - Discrete Structures
9% 45% 0% 27% 18% 0%
CS 110 - Computer science I
12% 0% 16% 12% 44% 0% 16%





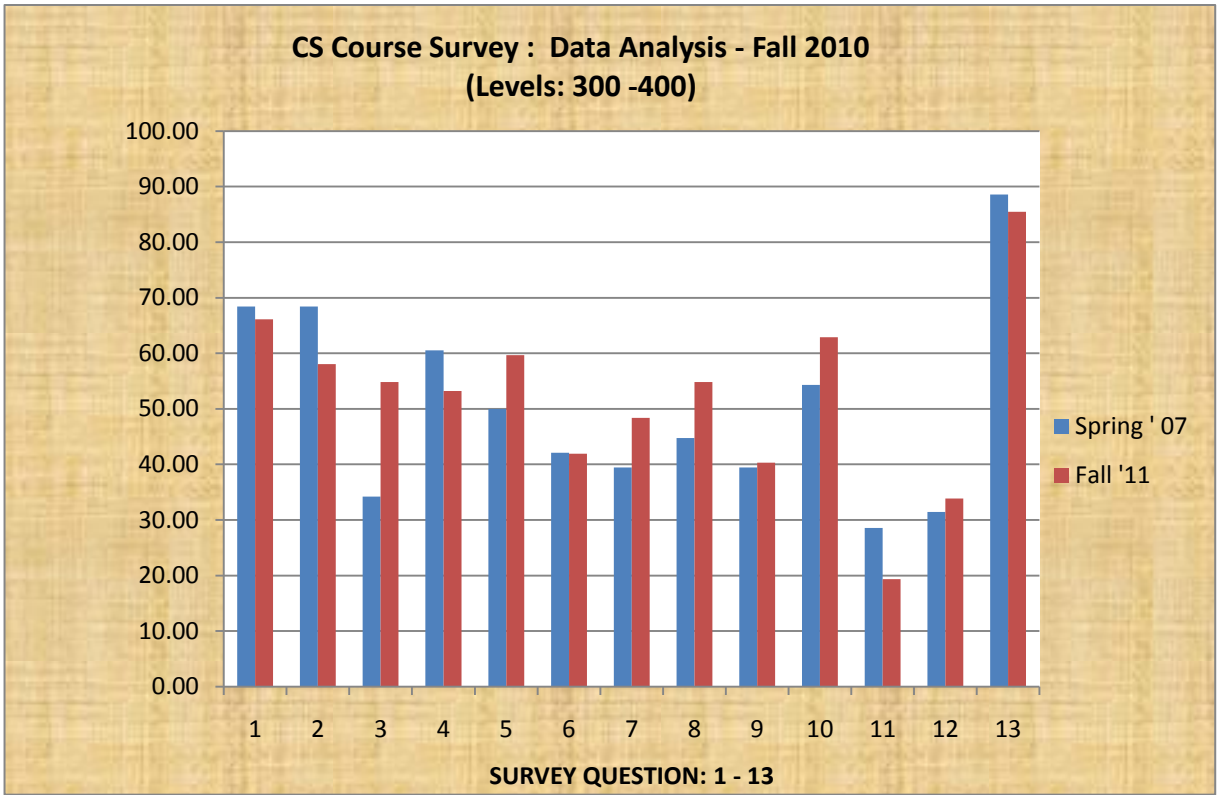
Computer Science: Course Assessment, Spring 2011



Survey Questions (*Items # 1 – 13*): CS 200 - 400

SPRING 2007 – CS Courses: **235, 300, 320, 345, 360, 400, 405, 419, 440, 456**
FALL 2010 - CS Courses: **210, 225, 300, 310, 336, 414 424, 459**
SPRING 2011 - CS Courses: **225, 235, 320, 345, 360, 405, 400, 419, 450**.

Computer Science Course Survey



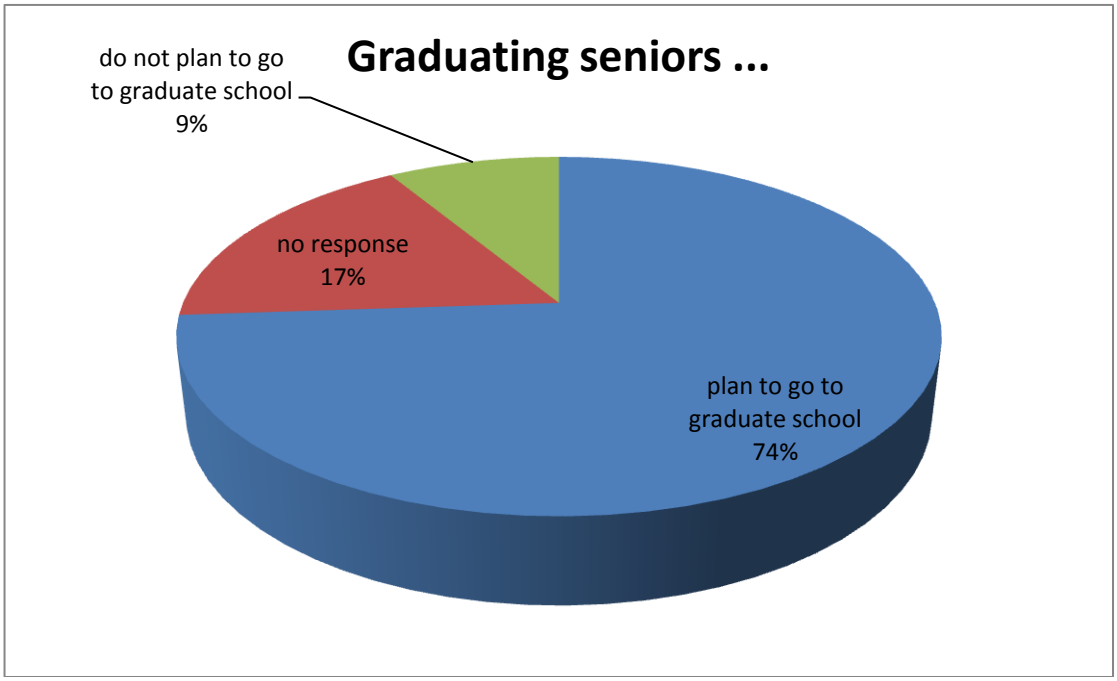
Question#	Survey Question: **CS 300 - 400 (Fall 2010)**						
		Excellent (%)	**Very Good (%)**	**Satisfactory (%)**	**Fair (%)**	**Not Known (%)**	**Not Applicable (%)**
#1	How well does this course prepare you to identify, formulate, and solve problems using computer science skills?	14.00	27.00	11.00	4.00	3.00	3.00
#2	How well does this course prepare you to analyze and design applications to complete class projects using the complete software development cycle?	19.00	17.00	14.00	5.00	1.00	6.00
#3	How well does this course prepare you to work on team projects with team members from other majors?	14.00	20.00	10.00	8.00	6.00	4.00

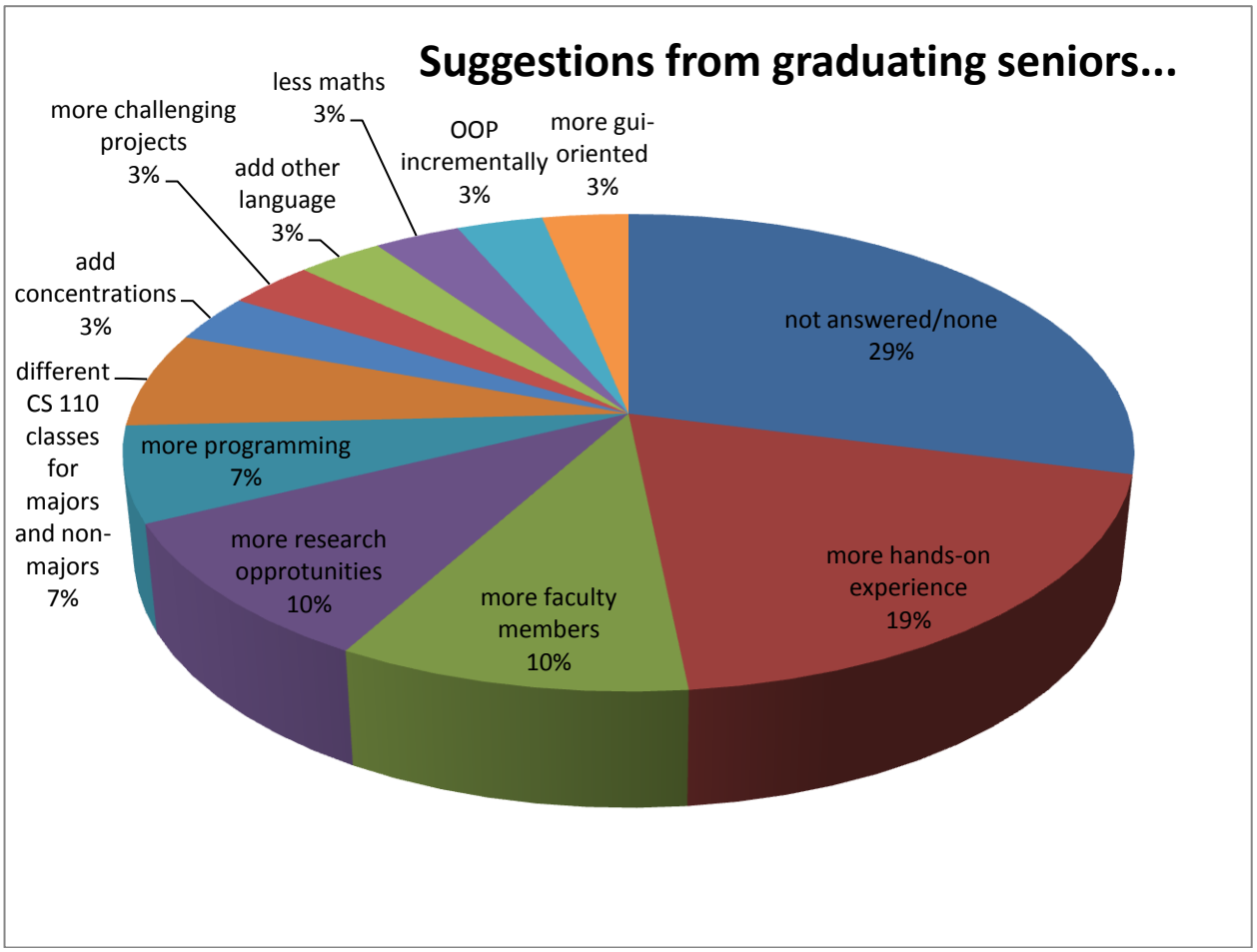
#4	How well does this course prepare you to develop and document technical procedures?	12.00	21.00	16.00	7.00	5.00	1.00
#5	How well does this course provide you with preparation for effective oral and written communication skills?	15.00	22.00	15.00	6.00	3.00	1.00
#6	How well does this course provide you with sufficient experiences to increase your skill in using Power Point?	15.00	11.00	22.00	4.00	2.00	8.00
#7	How well does this course increase your ability to give descriptive/comparative technical audio-visual presentations.	15.00	15.00	16.00	8.00	4.00	4.00
#8	How well does this course increase your understanding of professional and ethical responsibilitilty?	11.00	23.00	19.00	4.00	3.00	2.00
#9	How well does this course increase your understanding of ethical codes of progessinal computer societies?	7.00	18.00	25.00	5.00	3.00	4.00
	<u>300-400 Level CS Courses:</u>						
#10	Are you a student member of one or more computing societies such as ACM, IEEE-CS?	39.00	21.00	2			
#11	Have you attended any ACM, IEEE-CS or other computer related professional meetings this semester?	12.00	47.00	3			
#12	Have you read computer science periodicals/journals this semester as part of course assignments?	21.00	38.00	3			
#13	Was this class intellectually stimulating? .	53.00	3.00	6			

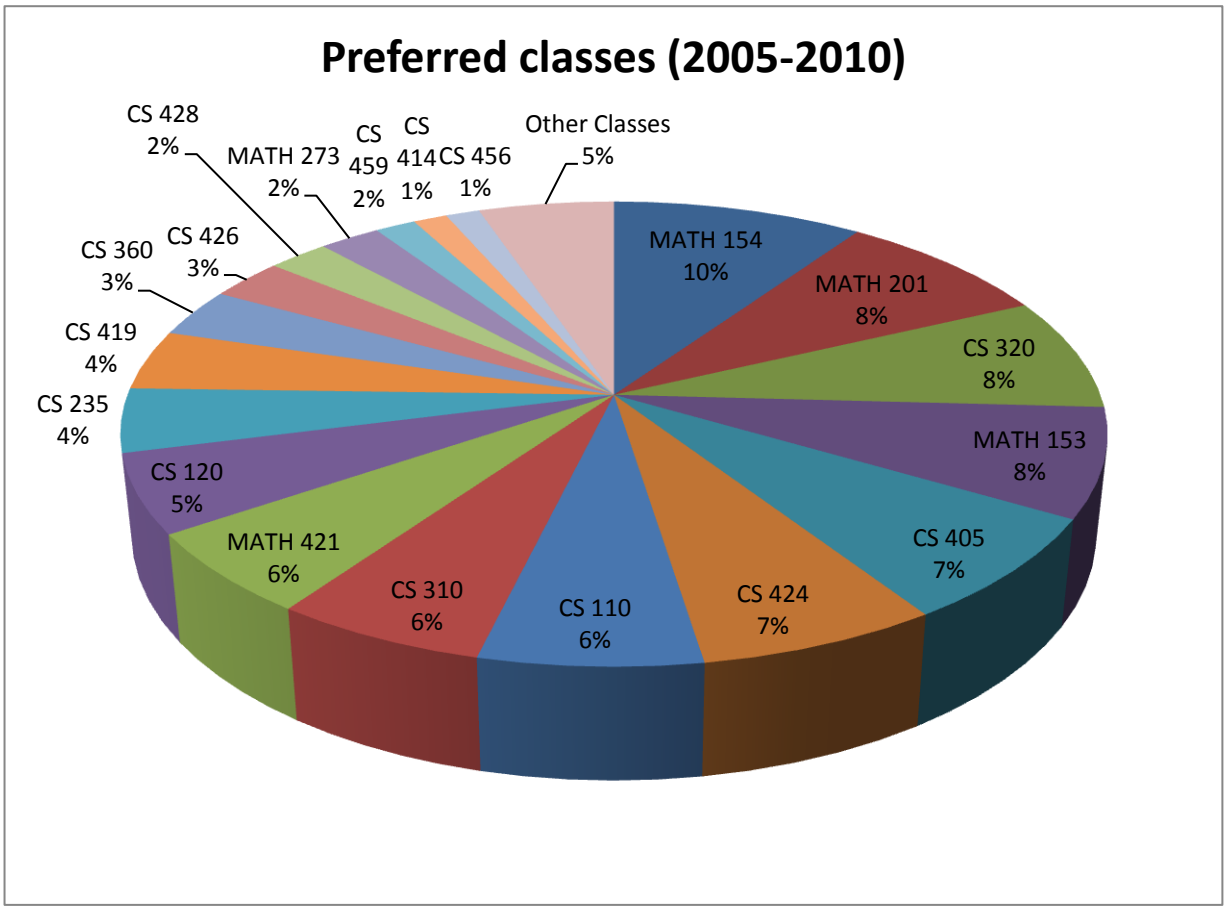
GRAPHS/CHARTS: Compare (Spring 2007 vs. Spring 2011)

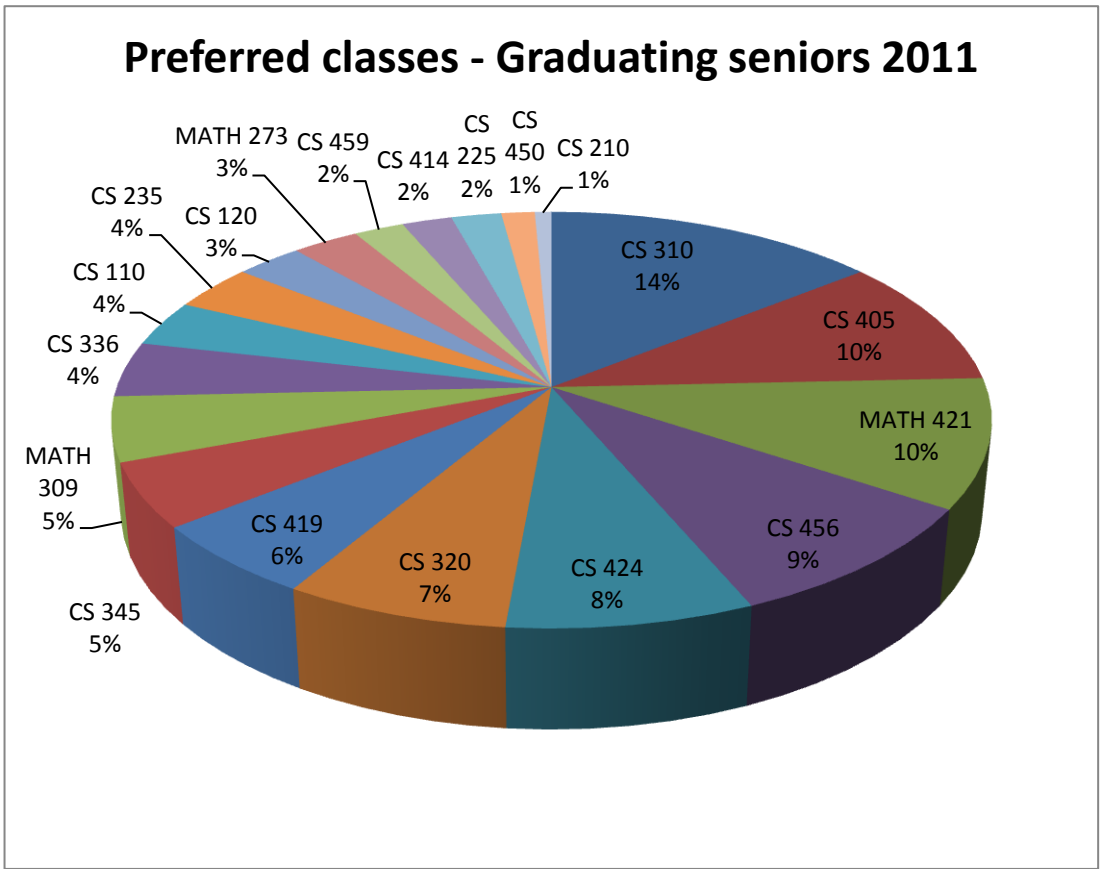
SURVEY ITEM # :	Spring '06 %	Spring ' 07 %	Spring '11 %
1	87.80	68.42	66.13
2	80.49	68.42	58.06
3	43.90	34.21	54.84
4	75.61	60.52	53.23
5	51.22	50.00	59.68
6	31.71	42.11	41.94
7	34.15	39.47	48.39
8	46.34	44.74	54.84
9	41.46	39.47	40.32
10	17.50	54.29	62.90
11	5.00	28.57	19.35
12	10.00	31.43	33.87
13	87.50	88.57	85.48

Graduate Student Assessment




Suggestions from graduating seniors...
not answered/none 29%
more hands-on experience 19%
more faculty members 10%
more research opprotunities 10%
more programming 7%
different CS 110 classes for majors and non-majors 7%
add concentrations 3%
more challenging projects 3%
add other language 3%
less maths 3%
OOP incrementally 3%
more gui-oriented 3%


Preferred classes (2005-2010)
MATH 154 10%
MATH 201 8%
CS 320 8%
MATH 153 8%
CS 405 7%
CS 424 7%
CS 110 6%
CS 310 6%
MATH 421 6%
CS 120 5%
CS 235 4%
CS 419 4%
CS 360 3%
CS 426 3%
CS 428 2%
MATH 273 2%
CS 459 2%
CS 414 1%
CS 456 1%
Other Classes 5%


Preferred classes - Graduating seniors 2011
CS 310 14%
CS 405 10%
MATH 421 10%
CS 456 9%
CS 424 8%
CS 320 7%
CS 419 6%
CS 345 5%
MATH 309 5%
CS 336 4%
CS 110 4%
CS 235 4%
CS 120 3%
MATH 273 3%
CS 459 2%
CS 414 2%
CS 225 2%
CS 450 1%
CS 210 1%

Signature Attesting to Compliance

By signing below, I attest to the following:

That **_Computer Science** (*Name of the program(s)*) has conducted an honest assessment of compliance and has provided a complete and accurate disclosure of timely information regarding compliance with ABET's *Criteria for Accrediting Computing Programs* to include the General Criteria and any applicable Program Criteria, and the ABET *Accreditation Policy and Procedure Manual.*

Dr. Connie Walton, Provost & Vice President for Academic Affairs ___

_____ _____

Signature **Date**