

COLLEGE OF NATURAL AND APPLIED SCIENCES

COMPUTER SCIENCE PROGRAM

PROSPECTUS

Notice: The Computer Science Program is scheduled for a substantial curriculum revision. As a result, there is a moratorium on new enrollment into the program. As part of the teach-out plan, the program is no longer accepting students. Current Computer Science majors (who remain continuously enrolled) have until May 2029 to complete their program requirements and should seek advisement from the CNAS Dean's Office to ensure they are taking all remaining requirements to complete the program. For more information, contact Katrina Quinata at 735-0317 or Interim Associate Dean Kate Moots at 735-2006.

The Bachelor of Science program in Computer Science is to provide students with the educational background necessary to pursue professional careers in the wide variety of positions in which Computer Science is required, or to continue their education toward advanced degrees in Computer Science or related area. We provide students with:

- a strong knowledge of computer science fundamentals and computer system technology.
- skills for creating computer systems and applications for practical problem-solving.
- the ability and motivation to adapt as technology advances.

PROGRAM EDUCATIONAL OBJECTIVES

Within a few years of graduation, graduates of the Computer Science program are expected to

1. Successfully apply their problem-solving skills to advance software development in a variety of domains.

2. Successfully apply technical knowledge to innovate and bring forth transformational change for metropolitan, regional, and global well-being.
3. Demonstrate responsible leadership in the development of software/ computing technologies to solve real-world problems in diverse communities.
4. Demonstrate lifelong learning and professional growth via advanced study, career advancement, or social contributions.

LEARNING OUTCOMES

Computer Science Program enables students to achieve the following outcomes by the time of graduation:

- PL0-1.* Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- PL0-2.* Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- PL0-3.* Communicate effectively in a variety of professional contexts.
- PL0-4.* Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- PL0-5.* Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- PL0-6.* Apply computer science theory and software development fundamentals to produce computing-based solutions.

DEGREE REQUIREMENTS

MAJOR REQUIREMENTS (64 CREDIT HOURS)

All students intending to declare themselves Computer Science majors must have a cumulative GPA of at least 2.5 prior to entry into the program. Once admitted into the program, new students should see the Division of Mathematics and Computer Science administrative assistant. Computer Science majors must receive a "C" or better and maintain a 2.5 GPA for all courses required of this major.

Students must complete the Associate of Science in Computer Science - UOG Track from the Guam Community College as their first two years of the Computer Science Program. Upon completion, they will have met their General Education requirements for graduation from UOG, as well as their basic programming and computer networking coursework.

An Exam in Programming Proficiency (EPP) will be administered to determine whether a student needs to strengthen their programming skills prior to the start of Year 3 of the CS program. Students will be required to take CS280: Programming Lab Practicum in the summer prior to starting Year 3 if they do not pass the EPP. Students should also try to complete MA161a/b: College Algebra and Trigonometry or MA165: Precalculus while at GCC. Otherwise, it is recommended to take these courses during the summer prior to starting Year 3, as the prerequisite for MA203: Calculus I.

The required courses, support courses, and electives are detailed below.

Required Major Courses: (40 credit hours)

Required Courses (40 credit hours)

Course	Course Title	Credits	Term Offered
CS271	DISCRETE STRUCTURES	3	FALL ONLY/ FALL ONLY
CS373	DATA STRUCTURES & ALGORITHMS	4	SUMMER/ SUMMER ONLY
CS375	COMPUTER ORGANIZATION AND ARCHITECTURE	3	SUMMER/ SUMMER ONLY
CS377	DATABASE DESIGN AND IMPLEMENTATION	3	SPRING ONLY/ SPRING ONLY
CS383	ORGANIZATION OF PROGRAMMING LANGUAGES	3	FALL ONLY/ ALL YEARS
CS385	INTRODUCTION TO OPERATING SYSTEM	3	
CS477	SOFTWARE ENGINEERING	3	FALL ONLY/ FALL ONLY

CS-XXX Upper Elective I = 3 credits F/SP

CS-XXX Upper Elective II = 3 credits F/SP

CS-XXX Upper Elective III = 3 credits F/SP

Required Support Courses (24 credit hours)

Course	Course Title	Credits	Term Offered
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA387	STATISTICS FOR SCIENCES	3	FALL ONLY/ ALL YEARS
MA387L	STATISTICS FOR SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS

In addition to these required major and support courses, students may need the following courses as prerequisites, if not satisfied prior to starting at UOG or if they do not pass the EPP.

Additional courses as needed: 11-12 credit hours or Students my choose electives from the following list of courses:

Other 300- or 400-level course with departmental approval.

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA161B	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS
CS280	PROGRAMMING PRACTICUM	3	SUMMER/ SUMMER ONLY
CS380	ORG OF PROGRAMMING LANGUAGES	3	FALL ONLY/ ALL YEARS
CS498	COMPUTER SCIENCE INTERNSHIP	4	SPRING ONLY/ ALL YEARS
MA341	LINEAR ALGEBRA	3	FALL/SPRING/ ALL YEARS
MA375	NUMERICAL METHODS AND SOFTWARE	3	SPRING ONLY/ ODD YEARS
BA330	INFORMATION TECHNOLOGY AND NETWORKS FOR BUSINESS	3	FALL/SPRING/ ALL YEARS
BA335	CYBERSECURITY AND CLOUD SERVICE	3	FALL/SPRING/ ALL YEARS



The recommended sequencing of course for students transferring from GCC is outlined below:

UOG CURRICULUM GUIDE FOR GCC TRANSFERS

BRIDGE PROGRAM (SUMMER)

Summer A	Summer C
MA-161A or MA165	MA161B, CS-280 - if fail EPP ³

Junior Year (First Year at UOG)

Fall		Spring	
MA-203 Calculus	5	MA-204 Calculus II	5
MA-387 & MA-387L Stats for Science	4	CS-370 Ethics & Professionalism	3
CS-271 Discrete Structures	3	CS-375 Computer Organization and Architecture	3
CS-373 Data Structures & Algorithms	4	CS-377 DB Design & Implement	3
		CS-xxx Elective I	3
Term Total	16	Term Total	17

Senior Year (Second Year at UOG)

CS-xxx Elective 2	3	CS-xxx Elective 3	3
CS-383 Org of Prog Languages	3	CS-485 Data Comm&Network	3

CS-385 Introduction to OS	3	CS-495 Senior Project	3
CS-477 Software Engineering	3		
PH-251 and PH210 Univ Physics	5	PH-252 & PH-211 Univ Physics	5
Term Total	17	Term Total	14
TOTAL			64
UPPER-LEVEL TOTAL			41

MINOR REQUIREMENTS (41 CREDIT HOURS)

The Computer Science minor program is intended to provide students majoring in other disciplines, especially those in the sciences, with a broad exposure to computer science. The minor will benefit both the graduate school-bound student and one headed for an information technology intensive workplace.

Required Courses (32 credit hours)

Course	Course Title	Credits	Term Offered
CS200	COMPUTER APPLICATIONS	3	FALL/SPRING/ ALL YEARS
CS201	PROGRAMMING I	4	FALL/SPRING/ ALL YEARS
CS202	PROGRAMMING II	4	FALL/SPRING/ ALL YEARS
CS303	DATA STRUCTURES AND ALGORITHM ANALYSIS	3	FALL/SPRING/ ALL YEARS
CS315	INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS	3	SPRING ONLY/ ALL YEARS
CS360	INTRODUCTION TO OPERATING SYSTEMS	3	FALL ONLY/ ALL YEARS
CS403	DATE COMMUNICATION & COMPUTER NETWORKS	4	SPRING ONLY/ ALL YEARS
CS492	PRACTICUM IN COMPUTER SCIENCE	3	FALL/SPRING/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS

Elective Courses (9 credit hours)

Select nine credit hours from the following courses:

Course	Course Title	Credits	Term Offered
CS305	ASSEMBLY LANGUAGE AND COMPUTER ORGANIZATION	3	FALL ONLY/ ALL YEARS
CS365	COMPUTER ARCHITECTURE	3	SPRING ONLY/ ALL YEARS
CS380	ORG OF PROGRAMMING LANGUAGES	3	FALL ONLY/ ALL YEARS
CS431	ADVANCED TOPICS IN COMPUTING	3	FALL ONLY/ ALL YEARS
MA151	INTRODUCTORY STATISTICS	3	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA341	LINEAR ALGEBRA	3	FALL/SPRING/ ALL YEARS
MA351	DISCRETE STRUCTURES	3	SPRING ONLY/ ALL YEARS
MA385	APPLIED STATISTICS	3	FALL/SPRING/ ALL YEARS
MA411	INTRODUCTION TO ABSTRACT ALGEBRA I	3	FALL ONLY/ ALL YEARS
MA451	INTRODUCTION TO PROBABILITY THEORY	3	FALL ONLY/ EVEN YEARS
MA460	NUMERICAL LINEAR ALGEBRA	3	AS REQUIRED
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS



Course	Course Title	Credits	Term Offered
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS

Note: MA-151 fulfills the General Education requirements.

FACULTY

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