

COLLEGE OF NATURAL AND APPLIED SCIENCES

COMPUTER SCIENCE PROGRAM

PROSPECTUS

The Bachelor of Science in Computer Science provides 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.

Students may obtain a Bachelor of Science in Computer Science through one of the following paths:

- 1) Complete the two-year Associate of Science in Computer Science - UOG Track degree at Guam Community College followed by two years in the Computer Science program at UOG or
- 2) Complete the full four-year Computer Science program at UOG, starting as a pre-Computer Science major until all general education and prerequisite courses are completed.

Note: *Computer Science majors under previous Catalog years 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 (671) 735-0317 or Interim Associate Dean Kate Moots at (671) 735-2006.*

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

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

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

DEGREE REQUIREMENTS

MAJOR REQUIREMENTS

All students intending to declare Computer Science as their major must have a cumulative GPA of at least 2.5 prior to entering the program. In addition, all students intending to declare a Computer Science major will be required to take CS280 Programming Lab Practicum in the summer prior to starting Year 3. This admission requirement may be waived if a student passes the Exam in Programming Proficiency. Once admitted into the program, new students should see the Division of Mathematics & 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.

The required courses, electives, and suggested General Education courses are detailed below.

PATHWAY: ASSOCIATE OF SCIENCE IN COMPUTER SCIENCE UOG TRACK FROM GCC (15-16 CREDIT HOURS)

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

Students should also try to complete MA161A/B College Algebra & Trigonometry OR MA165 Precalculus while at GCC. Otherwise, it is recommended to take these courses during the summer prior to entering UOG for Year 3 of the program as the prerequisite for MA203 Calculus I.

Required Courses (11-12 credit hours)

| If not completed at GCC

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
CS271	DISCRETE STRUCTURES	3	FALL ONLY/ ALL YEARS
BA230	DATA PROCESSING AND DATA ADMINISTRATION WITH MAC APPLICATION	3	FALL ONLY/ ODD YEARS

Required Admission Courses (0-3 credit hours)

Course	Course Title	Credits	Term Offered
CS280	PROGRAMMING PRACTICUM	4	FALL ONLY/ ALL YEARS

Proposed UOG Curriculum Guide for GCC Transfers (64 credit hours)

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

BRIDGE PROGRAM (Summer)

Choose one of the following:

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

OR

Course	Course Title	Credits	Term Offered
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

Take CS-280 if you failed in Examination in Programming Proficiency

Course	Course Title	Credits	Term Offered
CS280	PROGRAMMING PRACTICUM	4	FALL ONLY/ ALL YEARS

JUNIOR YEAR (First Year at UOG)

Fañuchånan (Aug.-Dec.) (16 credit hours)

Course	Course Title	Credits	Term Offered
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA387	STATISTICS FOR SCIENCES	3	FALL/SPRING/ ALL YEARS
MA387L	STATISTICS FOR SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS
CS271	DISCRETE STRUCTURES	3	FALL ONLY/ ALL YEARS
CS373	DATA STRUCTURES & ALGORITHMS	4	SPRING ONLY/ ALL YEARS

Fañomnåkan (Jan.-May) (17 credit hours)

Course	Course Title	Credits	Term Offered
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
CS375	COMPUTER ORGANIZATION AND ARCHITECTURE	3	SPRING ONLY/ ALL YEARS
CS377	DATABASE DESIGN AND IMPLEMENTATION	3	FALL ONLY/ ALL YEARS

and CS-XXX Elective 1

SENIOR YEAR (Second Year at UOG)

Fañuchånan (Aug.-Dec.) (17 credit hours)

PATHWAY: PRE-COMPUTER SCIENCE AT UOG (63-64 CREDIT HOURS)

Students who wish to begin the Computer Science program at UOG as Pre-Computer Science majors will need to pass the following courses, in addition to the following General Education requirements: MA161A/B College Algebra & Trigonometry or MA165 Precalculus; CS201 Programming I; CS202 Programming II; CS271 Discrete Structures; BA230 Data Processing & Data Administration with Mac Application.

Required Courses (19-20 credit hours)

Course	Course Title	Credits	Term Offered
CS201	PROGRAMMING I	4	FALL/SPRING/ALL YEARS
CS202	PROGRAMMING II	4	FALL/SPRING/ALL YEARS
CS271	DISCRETE STRUCTURES	3	FALL ONLY/ALL YEARS
BA230	DATA PROCESSING AND DATA ADMINISTRATION WITH MAC APPLICATION	3	FALL ONLY/ODD YEARS

Choose one of the following:

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

OR

Course	Course Title	Credits	Term Offered
CS383	ORGANIZATION OF PROGRAMMING LANGUAGES	3	SPRING ONLY/ALL YEARS
CS385	INTRODUCTION TO OPERATING SYSTEM	3	FALL ONLY/ALL YEARS
CS477	SOFTWARE ENGINEERING	3	FALL ONLY/ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ALL YEARS

and CS-XXX Elective 2

Fa'omnåkan (Jan.-May) (14 credit hours)

Course	Course Title	Credits	Term Offered
CS485	DATA COMMUNICATIONS AND NETWORKING	3	FALL ONLY/ALL YEARS
CS495	SENIOR PROJECT	3	SPRING ONLY/ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ALL YEARS
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ALL YEARS

and CS-XXX Elective 3

Course	Course Title	Credits	Term Offered
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

General Education Courses (41 credit hours)

See CNAS Academic Adviser Ms. Katrina Quinata (quinatak@triton.uog.edu).

Required Admission Courses (0-3 credit hours)

Course	Course Title	Credits	Term Offered
CS280	PROGRAMMING PRACTICUM	4	FALL ONLY/ ALL YEARS

COMPUTER SCIENCE (63 CREDIT HOURS)

Note: These course are required for both Pathways.

Required Courses (52 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/SPRING/ 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
CS373	DATA STRUCTURES & ALGORITHMS	4	SPRING ONLY/ ALL YEARS
CS375	COMPUTER ORGANIZATION AND ARCHITECTURE	3	SPRING ONLY/ ALL YEARS
CS377	DATABASE DESIGN AND IMPLEMENTATION	3	FALL ONLY/ ALL YEARS
CS383	ORGANIZATION OF PROGRAMMING LANGUAGES	3	SPRING ONLY/ ALL YEARS

Course	Course Title	Credits	Term Offered
CS385	INTRODUCTION TO OPERATING SYSTEM	3	FALL ONLY/ ALL YEARS
CS477	SOFTWARE ENGINEERING	3	FALL ONLY/ ALL YEARS
CS485	DATA COMMUNICATIONS AND NETWORKING	3	FALL ONLY/ ALL YEARS
CS495	SENIOR PROJECT	3	SPRING ONLY/ ALL YEARS

Elective Courses (8 credit hours)

Choose electives from the following, or other 300 or 400 level courses, with departmental approval:

Course	Course Title	Credits	Term Offered
CS420	COMPUTER & NETWORK SECURITY	3	SPRING ONLY/ ALL YEARS
CS431	ADVANCED TOPICS IN COMPUTING	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
CSM300	CYBERSECURITY MANAGEMENT TOOLS AND TECHNIQUES	3	FALL/SPRING/ ALL YEARS
CSM301	CYBERCRIME AND DIGITAL FORENSICS	3	FALL/SPRING/ ALL YEARS

Required Admission Courses (0-3 credit hours)

Course	Course Title	Credits	Term Offered
CS280	PROGRAMMING PRACTICUM	4	FALL ONLY/ ALL YEARS

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 graduate school-bound students and students 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	DATA 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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