

Prerequisite/Corequisite Change Request

(Existing Courses)

	General Information
Date: 3/18/21	*Effective Term: Fall 2021
	Computer Science
Course Designator and Number (Cross-liste	ed Course Designator and Number): CS 5124
Title of Course:	Algorithms in Bioinformatics
Instructor and/or Department Contact:	Trey Mayo/Director of Graduate Programs
Contact Phone:	Contact E-mail: treymayo@vt.edu
	Prerequisite Enforced
Enable prerequisite enforcement?	Yes No
Add the following Prerequisite/Corequisit	es:
Graduate standing in the CSA p	rogram
Attach department letter of support to include a	non-departmental course as a prerequisite/corequisite.
Drop the Following Prerequisites/Corequi	sites:
(CS 4104 (UG)) OR (CS 4104)	
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List Course Prerequisites/Corequisites aft	er change:
(CS 5046, PPWS 5314) and gra	duate standing in the CSA program.
Justification (Justify prerequisite/corequisi	ite changes and remaining prerequisites/corequisites after change)
Removing LIG pre-regs for course	se. CS 5046 or PPWS 5314 remain as pre-reqs for the course.
removing de pre-regs for cours	se. C3 3040 of FF W3 3314 remain as pre-regs for the course.
If a J.line a minimum I	
y unuing a minimum grade as a prerequisit order to be successful in the course. Minim	te for a course, data must be provided to clearly show the need for that minimum grade in um grade requirements may not be used as a way to limit enrollment.
to be buccessjut in the course. Minim	am grade requirements may not be used as a way to limit enrollment.

*If request is being processed for the upcoming effective term:

- Requests to **ADD** prerequisite requirements (i.e., turn enforcement **ON**, add grade restriction, add course) must be processed prior to the opening of "course request" for the applicable effective term.
- Requests to REMOVE prerequisite requirements (i.e., turn enforcement OFF, remove a grade restriction, drop course) may be completed at any time, unless the removal causes the course to be more restrictive.

Approval Signatur	es	
Department Head/Chair	Date	3/18/2021
College Curriculum Committee Representative Autorat Long 550	Date	3/19/21
College Dean Mkarus	Date	3/19/21

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COMPUTER SCIENCE 5124 ALGORITHMS IN BIOINFORMATICS (ADP TITLE: ALGORITHMS IN BIOINFORMATICS)

I. CATALOG DESCRIPTION:

5124 ALGORITHMS IN BIOINFORMATICS

Algorithms to solve problems found in biology, especially molecular biology. A variety of current problems in computational molecular biology will be introduced, investigated, analyzed for computational complexity, and solved with efficient algorithms, when feasible. A number of such problems will be shown to be intractable or other evidence of their difficulty will be presented.

Pre: (1) 4104 or 5046 or graduate standing in CSA; (2) PPWS 5314. (3H,3C)

Course Number: 5124

ADP Title: ALGORITHMS IN BIOINFORMATICS

II. LEARNING OBJECTIVES:

Having successfully completed this course, the student will be able to:

- describe the computational needs of molecular biologists in the biologists' language;
- translate those needs into precise statements of problems that may be amenable for computational solution; and
- analyze the difficulty of such a problem and devise efficient algorithms to solve the problem, if feasible.

III. JUSTIFICATION:

The topics covered in this course cover a significant portion of the rapidly emerging area of synergy between computer science and the biological sciences known as bioinformatics. This course will enable graduate students in computer science to begin research collaborations with biologists and computer scientists working in bioinformatics. These students can be early contributors to the bioinformatics institute coming to Virginia Tech or in other bioinformatics efforts taking shape here.

The course is at the 5000 level because it requires a level of maturity and experience in computer science that can not be assumed for undergraduates. The course presumes that students are focused on doing advanced study and research in bioinformatics and may come from life science departments or statistics.

IV. PREREQUISITES AND COREQUISITES:

Graduate standing in CSA or CS 5046 or CS 4104 is required to insure that students have the proper computer science background necessary for this course. PPWS 5314 (Biological Paradigms for Bioinformatics) is required to