

Program Approval Form

For approval of new programs and deletions or modifications to an existing program.

Action Requested:

- Create New (SCHEV approval required except for minors)
- Inactivate Existing
- Modify Existing (check ALL that apply)
 - Title (SCHEV approval required except for minors)
 - Concentration (Choose one): Add Delete Modify
 - Degree Requirements
 - Admission Standards/ Application Requirements
 - Other Changes: _____

Type (Check one):

- B.A. B.S. Minor
- Master's
- Ph.D.
- Undergraduate Certificate*
- Graduate Certificate*
- Bachelor's/Accelerated Master's Other:

College/School: Department:
 Submitted by: Ext: Email:

Effective Term: Fall Please note: For students to be admitted to a new degree, minor, certificate or concentration, the program must be fully approved, entered into Banner, and published in the University Catalog.

Justification: (attach separate document if necessary)

Program Title: (Required)
 Title must identify subject matter. Do not include name of college/school/dept.

Concentration(s):

Admissions Standards / Application Requirements: (Required only if different from those listed in the University Catalog)

Degree Requirements:
 Consult University Catalog for models, attach separate document if necessary using track changes for modifications

Courses offered via distance:
 (if applicable)

TOTAL CREDITS REQUIRED:

Existing	New/Modified
Biology BS	
	Bioinformatics
	NA
	See attached
	NA
	19

*For Certificates Only: Indicate whether students are able to pursue on a Full-time basis Part-time basis

Approval Signatures

Department _____ Date _____ College/School _____ Date _____

If this program may impact another unit or is in collaboration with another unit at Mason, the originating department must circulate this proposal for review by those units and obtain the necessary signatures prior to submission. Failure to do so will delay action on this proposal.

Unit Name	Unit Approval Name	Unit Approver's Signature	Date

For Undergraduate Programs only

Undergraduate Council Member _____ Provost Office _____ Undergraduate Council Approval Date _____

For Graduate Programs Only

Graduate Council Member _____ Provost Office _____ Graduate Council Approval Date _____

Program Proposal Submitted to the College of Science Curriculum Committee (COSCC)

The form above is processed by the Office of the University Registrar. This second page is for the COSCC's reference.
Please complete the applicable portions of this page to clearly communicate what the form above is requesting.

FOR ALL PROGRAMS (required)

Program Title: Concentration in Bioinformatics

Date of Departmental Approval: September 23, 2016

FOR INACTIVATED PROGRAMS (required if inactivating a program)

- Reason for Inactivation:

FOR MODIFIED PROGRAMS (required if modifying a program)

- Summary of the Modification:
- Text before Modification (title, degree requirements, etc.):
- Text after Modification (title, degree requirements, etc.):
- Reason for the Modification:

FOR NEW PROGRAMS (required if creating a new program)

- Reason for the New Program: The highly interdisciplinary field of bioinformatics has emerged as a powerful modern science. There is a great demand for undergraduate and graduate level trained individuals with a background in bioinformatics in industry as well as in academia. To address this need undergraduate programs across the United States are moving to integrate bioinformatics into their curriculum. The Department of Biology therefore proposes this new concentration.
- Relationship to Existing Programs:
NA
- Relationship to Existing Courses:
NA
- Semester of Initial Offering:
Fall 2017
- Insert Tentative SCHEV Proposal Below



Department of Biology

4400 University Drive, MS 3E1, Fairfax, Virginia 22030

Phone: 703-993-1050; Fax: 703-993-1046

September 23, 2016

Proposal for a New Concentration within the BS in Biology

Title: Concentration in Bioinformatics

Justification

The highly interdisciplinary field of bioinformatics has emerged as a powerful modern science. There is a great demand for undergraduate and graduate level trained individuals with a background in bioinformatics in industry as well as in academia. To address this need undergraduate programs across the United States are moving to integrate bioinformatics into their curriculum. The Department of Biology has been planning to move in this direction for several years but never assembled a satisfactory curriculum. There have been many challenges in the development on well-integrated and cohesive interdisciplinary curriculum that will prepare students for a wide variety of professional options. The proposed concentration will provide students with courses from three College of Science Departments, CDS SSB, and Biology, in addition to courses already required in the BS Degree in Biology, Math, Physics, and Chemistry.

Curriculum

In addition to the courses required for all students earning the BS degree in Biology, the following will be required for 23 credits.

Bioinformatics Concentration

Computer Science Courses (3 credits)

CDS 130 is recommended to fulfill the Computer Science requirement in the Biology Core and Shared Courses section above.

- **CDS 230: 3 credits. Modeling and Simulation I**

Bioinformatics Courses (6 credits)

- **BINF 401: 3 credits. Bioinformatics and Computational Biology I**
- **BINF 402: 3 credits. Bioinformatics and Computational Biology II**

Biology Courses (14 credits)

- **BIOL 312: 4 credits. Biostatistics for Bioinformatics**
- **BIOL 401: 3 credits. Phage Discovery**
- **BIOL 412: 3 credits. Phage Genomics**
- **One upper division Biology lab elective: BIOL 320, 331, 332, 334, 336, 344, 345, 350, 355, 379, 405, 406, 407, 430, 431, 465, 468, 486, 534, 536, 537, 538,**

539, 543 or BIOL 305 and 306, 322 and 323, 326 and 327, 385 and 486, 452 and 453, 454 and 455, 472 and 473, 484 and 485, 509 and 510.

Bioinformatics Concentration Total: 23 credits
