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
- [X] Modify Existing (check all that apply)
  - [ ] Title (SCHEV approval required except for minors)
  - [X] **Concentration** (Choose one): [ ] *Add* [X] *Delete* [ ] *Modify*
  - [ ] Degree Requirements
  - [ ] Admission Standards/ Application Requirements
  - [ ] Other Changes: _____

Type (Check one)**:**

- [ ] B.A. [ ] B.S. [ ] Minor
- [ ] M.A. [X] M.S. [ ] M.Ed.
- [ ] Ph.D.
- [ ] Undergraduate Certificate*
- [ ] Graduate Certificate*
- [ ] Other:

College/School:	College of Science	**Department:**	School of Systems Biology		
Submitted by:	Diane St. Germain	**Ext:**	3-4263	**Email:**	dstgerma@gmu.edu

Effective Term: Fall 2014

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)

Please see attached for details.

	Existing	New/Modified
Program Title: (Required) Title must identify subject matter. Do not include name of college/school/dept.	M.S. Biology, Bioinformatics Concentration	delete the concentration
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:		

***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	Provost's Office *Interdisciplinary Council Use Only*	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 Graduate Programs Only

Graduate Council Member	Provost Office	Graduate Council Approval Date

For Registrar Office's Use Only: Received_____Banner_____Catalog_____

revised 6/7/12

M.S. Bioinformatics & Computational Biology

Bioinformatics core courses (12 credits):

BINF 630 - Bioinformatics Methods Credits: 3
BINF 631 - Molecular Cell Biology for Binf Credits: 3
BINF 634 - Bioinformatics Programming Credits: 3
BINF 734 - Advanced Bioinformatics Programming Credits: 3

Advanced bioinformatics (3 credits):

3 credits of advanced bioinformatics courses numbered BINF 730 and above

Electives (12 or 9 credits):

12 credits of electives in bioinformatics and computational biology, biology and biotechnology, or computational sciences, as approved by the advisor
Utilization of the 6-credit MS thesis option reduces the electives requirement from 12 credits to 9 credits.

Bioinformatics seminar (1 credit):

BINF 704 - Colloquium in Bioinformatics Credits: 1

Research component (3 or 6 credits):

Students must complete either a 3-credit research project or a 6-credit MS thesis. Utilization of the 6-credit MS thesis option reduces the electives requirement from 12 credits to 9 credits.

BINF 798 - Research Project Credits: 3
or
BINF 799 - Master's Thesis Credits: 1-6

Total: 31 credits

The School of Systems Biology now contains the previous Dept. of Bioinformatics and Computational Biology, which has an M.S. in Bioinformatics & Comp Biology degree. We would like to delete the Bioinformatics concentration for the M.S. Biology program also housed in the School of Systems Biology since it duplicates coursework in the MS BCB degree program.

Highlighted areas of the text above note overlapping requirements for the two programs. BINF students are able to choose lab courses (molecular techniques) as elective credit if pre-reqs are met.

No students have been enrolled in the M.S. Biology Bioinformatics concentration since 2005.

Course notes: BINF 704 is cross-listed with BIOL 695 seminar
BIOL 580 and BINF 630 are cross-listed
BINF 732 Genomics and BIOS 741 Genomics are approved electives

1–3 credits of research methodology:
BIOL 690 - Introduction to Graduate Studies in Biology Credits: 1-2
or
BIOS 702 - Research Methods Credits: 3

12 credits of core biology:
BIOL 580 - Computer Applications for the Life Sciences Credits: 3
or
BINF 630 - Bioinformatics Methods Credits: 3
BINF 634 - Bioinformatics Programming Credits: 3
BIOS 741 - Genomics Credits: 3
BINF 730 - Biological Sequence and Genome Analysis Credits: 3
or
BINF 731 - Protein Structure Analysis Credits: 3

2–4 credits of molecular techniques
Students choose from courses satisfying the Molecular Techniques requirement:
BIOL 668 - Advanced Techniques in Molecular Biology Credits: 4
BIOS 740 - Laboratory Methods in Functional Genomics and Biotechnology Credits: 3
Special topics courses, such as BIOL 575 or BIOL 691, may also be approved for this requirement by the program director, but only in semesters in which they are primarily a laboratory course of at least two credits with substantial content of techniques in molecular biology.

2 credits of seminar:
BIOL 695 - Seminar in Molecular, Microbial, and Cellular Biology Credits: 1
1–6 credits of research
either 1-3 credits of BIOL 798 - Master's Research Project Credits: 1-3
or 3-6 credits of BIOL 799 - Thesis Credits: 1-6

3-12 credits of electives
in BIOL, BIOS, or related areas as approved by the student's advisor and the program director.

Total: 30 credits