Program Approval Form

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

Registrar.

Action Requested:

- [ ] Create New (SCHEV approval required except for concentration, minors, and certificates)
- [ ] Delete Existing
- [x] Modify Existing (check all that apply)
  - [ ] Title (SCHEV approval required except for concentration, minors, certificates)
  - [x] Degree Requirements
  - [ ] Admission Standards
  - [ ] Application Requirements
  - [ ] Other Changes:

Type (Check one):

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

College/School:	College of Science	**Department:**	Biology Program		
Submitted by:	Larry Rockwood	**Ext:**	3-1031	**Email:**	lrockwoo@gmu.edu

Effective Term: Fall 2011

Please note: For students to start 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)

This reflects the new biology core courses and the new graduation requirements in the BS program.

	Existing	New/Modified
Program Title: (Required) Use title to identify subject matter. Do not include name of college/school or department.	Biology BS	Biology BS
Concentration Title(s):	▲ BS Concentration in Biology Education (with Licensure) (BIED)	▲ BS Concentration in Biology Education (with Licensure) (BIED)
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	See attached	See attached
Courses offered via Distance: (if applicable)		
TOTAL CREDITS REQUIRED:		

Approval Signatures

Department Date | College/School Date | Provost's Office Date

Required for Undergraduate Programs Only

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

▲ Concentration in Biology Education (with Licensure) (BIED)

The education concentration consists of a selection of courses that provide essential skills to students who wish to pursue a career teaching high school biology. The concentration allows students to receive a license to teach biology in Virginia secondary schools within 120 credits.

Students must fulfill all requirements for bachelor's degrees including university general education requirements . In addition, students majoring in biology with a concentration in education with licensure must complete the following. (Through the course work below, they satisfy the university-wide general education requirements in natural science, quantitative reasoning, and information technology proficiency.)

22 credits of biology core courses:

- BIOL 213 - Cell Structure and Function Credits: 4
- BIOL 214 - Introduction to Biostatistics Credits: 4
- BIOL 311 - General Genetics Credits: 4
- BIOL 308 - Foundations of Ecology and Evolution Credits: 5
- BIOL 310 - Biodiversity Credits: 5

8 credits in additional coursework for the concentration

- BIOL 430-431 - Advanced Human Anatomy and Physiology I and II Credits: 8

8 credits of biology electives:

- 8 credits of additional biology courses of which 4 credits must be from Upper Division courses. BIOL 124-125 not eligible to fulfill this requirement

13 credits of chemistry:

- CHEM 211 - General Chemistry Credits: 4
- CHEM 212 - General Chemistry Credits: 4
- CHEM 313 - Organic Chemistry Credits: 3
- CHEM 315 - Organic Chemistry Lab I Credits: 2

One of the following options (3-8 credits):

Students are encouraged to consult with a biology faculty advisor to determine which option (A, B, or C) best meets their career goals.

Option A

- CHEM 314 - Organic Chemistry Credits: 3
  and
- CHEM 318 - Organic Chemistry Lab II Credits: 2

Option B

- One chemistry course at the 300 or 400 level (3) (not CHEM 314)

Option C

- GEOL 101 - Introductory Geology I Credits: 4
- and
- GEOL 102 - Introductory Geology II Credits: 4

8 credits of physics:

- PHYS 243 - College Physics Credits: 3
- PHYS 244 - College Physics Lab Credits: 1
- PHYS 245 - College Physics Credits: 3
- PHYS 246 - College Physics Lab Credits: 1

3-4 credits of Mathematics chosen from:

- MATH 108 Introductory Calculus with Business Applications Credits: 3 (transfer students only)
- MATH 111 - Linear Mathematical Modeling Credits: 3
- MATH 113 - Analytic Geometry and Calculus I Credits: 4
- MATH 114 - Analytic Geometry and Calculus II Credits: 4

3 credits of computer science chosen from one of the following:

- CDS 130 - Computing for Scientists Credits: 3
- IT 103 - Introduction to Computing Credits: 3

Teacher Licensure Requirement (21 credits):
Admission to teacher licensure required.

- EDCI 473* - Teaching Science in the Secondary School Credits: 3
- EDCI 483* - Advanced Methods of Teaching Science in Secondary School Credits: 3
- EDUC 372 - Human Development, Learning, and Teaching Credits: 3 (Fulfills University General Education Social & Behavioral Science Requirement)
- EDUC 422 - Foundations of Secondary Education Credits: 3

- EDCI 490 - Student Teaching in Education Credits: 6 (Fulfills University General Education Synthesis Requirement)
- EDRD 419 - Literacy in the Content Areas Credits: 3

*These two courses will count toward the 44 required hours in Biology

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