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)
  - [x] **Concentration** (Choose one): [x] *Add* [ ] *Delete* [ ] *Modify*
  - [ ] Degree Requirements
  - [ ] Admission Standards/ Application Requirements
  - [ ] Other Changes: _____

Type (Check one)**:**

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

College/School:	College of Science	**Department:**	Biology		
Submitted by:	Larry Rockwood	**Ext:**	3 1031	**Email:**	lrockwoo@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)

See attached.

	Existing	New/Modified
Program Title: (Required) Title must identify subject matter. Do not include name of college/school/dept.	Biology	Biology
Concentration(s):		Concentration in Biopsychology
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		Attached
Courses offered via distance: (if applicable)		NA
TOTAL CREDITS REQUIRED:		21-23

***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
Psychology Department	Robert Smith		

For Graduate Programs Only

Graduate Council Member	Provost Office	Graduate Council Approval Date

Proposal for a New Concentration within the BS in Biology

Title: Concentration in Biopsychology
Effective Fall 2014.

Justification
There is a great deal of interest among undergraduates in Psychology related courses. The new MCAT test will have a section on psychology, further motivating students to explore this subject matter. In addition, many pre-veterinary students are interested in courses involving animals, particularly mammals.
We propose this concentration to address the needs and interests of students who wish to study biology in more depth than is offered by the Neuroscience degree programs, while simultaneously exploring Psychology and Neurobiology. The concentration would require 10-11 credits of Psychology and Neurobiology courses to be chosen from:

PSYC 100 - Basic Concepts in Psychology
PSYC 304 - Principles of Learning
PSYC 372 - Physiological Psychology
PSYC 373 - Physiological Psychology Laboratory
PSYC 406 - Psychology of Communication
NEUR 335 - Molecular, Developmental, and Systems Neuroscience

It would also require 11-12 credits in Biology selected from:
BIOL xxx (now taught under selected topics number 417) - Foundations of the Mammalian
BIOL 430 - Advanced Human Anatomy and Physiology I Credits: 4
BIOL 431 - Advanced Human Anatomy and Physiology II Credits: 4
BIOL 472 - Introductory Animal Behavior Credits: 3
BIOL 473 - Introductory Laboratory in Animal Behavior Credits:

The psychology department has approved this concentration.

PSYC 100 - Basic Concepts in Psychology
Credits: 3 (NR)
Introduces psychology as scientific discipline. Examines concepts and methods in learning, motivation, development, personality, and measurement.
Fulfills general education requirement in social and behavioral science

PSYC 304 - Principles of Learning
Credits: 4 (NR)
Principles of animal learning, including such topics as classical and operant conditioning, discrimination learning, and animal cognition.
Fulfills writing intensive requirement in the major.
Prerequisite(s): PSYC 300, or permission of instructor.
Notes: Laboratory projects require working with computer simulations. PSYC 304 is a writing-intensive course.
Hours of Lecture or Seminar per week: 3
Hours of Lab or Studio per week: 2

PSYC 372 - Physiological Psychology
Credits: 3 (NR)
Survey of neuroscience, including basic neuroanatomy, neural and synaptic transmission, neural mechanisms underlying normal and abnormal behavior, and biological mechanisms of drug action.
Fulfills general education requirement in information technology (all except ethics). PSYC 300, 301 and 372 must be taken in sequence.
Prerequisite(s): PSYC 100, and BIOL 103 and 104; or permission of instructor.
Hours of Lecture or Seminar per week: 3
Hours of Lab or Studio per week: 0

PSYC 373 - Physiological Psychology Laboratory
Credits: 1 (NR)
Functional anatomy and physiology of the brain, including dissection of brain and eye, and a demonstration and practice in research methods for studying physiological mechanisms underlying behavior.
Prerequisite(s): PSYC 372 or 375 or permission of instructor
Corequisite(s): PSYC 372 or 375 or permission of instructor
Hours of Lecture or Seminar per week: 1-4
Hours of Lab or Studio per week: 2

PSYC 406 - Psychology of Communication
Credits: 3 (NR)
An examination of the behavior of communicating across species and sensory modalities, with an emphasis on the evolutionary basis for the various communication strategies used by animals and humans.
Fulfills general education requirement in synthesis.
Prerequisite(s): PSYC 100 or permission of instructor and completion or current enrollment in all general education requirements.
Hours of Lecture or Seminar per week: 3
Hours of Lab or Studio per week: 0

NEUR 335 - Molecular, Developmental, and Systems Neuroscience
Credits: 3 (NR)
In-depth survey of genetic and embryological development of the brain and introduction to systems neuroscience, including sections on patterning gene expression, generation and migration of neurons, axonal and dendritic outgrowth, and basic neuroanatomy.
Hours of Lecture or Seminar per week: 2
Hours of Lab or Studio per week: 3
When Offered: Fall

BS in Biology with a Concentration in Biopsychology

The biopsychology concentration consists of a selection of courses designed to address the needs and interests of students who wish to study biology in more depth than is offered by the Neuroscience degree programs, while simultaneously exploring Psychology and Neurobiology. This concentration will help prepare pre medical students for the MCAT section related to psychology and provide pre-veterinary students with a background in animal learning.

Students who choose to undertake this concentration must complete their biology course work and the supporting requirements with a minimum GPA of 2.00 and fulfill all **requirements for bachelor's degrees** including **university general education requirements** and the additional rules for the BS in biology listed above. Through the course work below, they satisfy the university-wide general education requirements in natural science, quantitative reasoning, and information technology proficiency.

Degree Requirements

22 credits of biology core courses:

- **BIOL 213 - Cell Structure and Function** Credits: 4
- **BIOL 214 - Biostatistics for Biology Majors** Credits: 4
- **BIOL 311 - General Genetics** Credits: 4
- **BIOL 308 - Foundations of Ecology and Evolution** Credits: 5
- **BIOL 310 - Biodiversity** Credits: 5

10-11 credits of Psychology and Neurobiology chosen from the list below.
One of these courses must include a laboratory.

- PSYC 100 - Basic Concepts in Psychology Credits: 3
- PSYC 372 - Physiological Psychology Credits: 3
- PSYC 373 - Physiological Psychology Laboratory Credits: 1
- PSYC 304 - Principles of Learning Credits: 4
- PSYC 406 - Psychology of Communication (fulfills synthesis requirement) Credits: 3
- NEUR 335 - Molecular, Developmental, and Systems Neuroscience Credits: 3

11-12 credits in Biology chosen from:

- BIOL 430 - Advanced Human Anatomy and Physiology I Credits: 4
- BIOL 431 - Advanced Human Anatomy and Physiology II Credits: 4
- BIOL 472 - Introductory Animal Behavior Credits: 3
- BIOL 473 - Introductory Laboratory in Animal Behavior Credits: 1

11-12 Additional credits of biology electives:

- 11-12 credits of additional biology courses of which at least 3 credits must be upper division.

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
- **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
- **GEOL 102 - Introductory Geology II** Credits: 4

8 credits of physics:

One sequence chosen from:

- **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
- The following physics course sequence will also satisfy the biology major requirement
- **PHYS 160 - University Physics I** Credits: 3
- **PHYS 161 - University Physics I Laboratory** Credits: 1
- **PHYS 260 - University Physics II** Credits: 3
- **PHYS 261 - University Physics II Laboratory** Credits: 1

3-4 credits of math chosen from:

- **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:

- **CDS 130 - Computing for Scientists** Credits: 3 (recommended by the biology program)
- or any course that fulfills the IT general education requirement