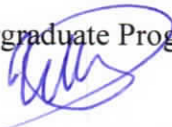


**MEMORANDUM**

DATE: April 24, 2017

TO: CESCOS Undergraduate Programs Committee

FROM: Randy Brooks, Professor and Undergraduate Programs Committee Chair  
Department of Biological Sciences 

SUBJECT: Changes to Biology Bachelor of Science and Bachelor of Arts Catalog Entries

According to the university catalog, students must complete “at least 75% of all upper-division credits in the major department from FAU”. The below described and attached modification to our catalog entry is requisite to ensuring alignment between our program requirements and this university level requirement.

The Biology Department proposes to do the following (see tracked changes version of the catalog description attached):

- 1) Remove the following statement from our Bachelor of Science Degree description: “*The Department of Psychology and Department of Biological Sciences jointly administer the Neuroscience and Behavior major. Thus, Biology majors may choose electives from that program list as well.*”,
- 2) Add the course Comparative Animal Behavior (CBH 4024), which is now administered by our department, to the elective lists for both the Biology BA and BS degree options,
- 3) Increase the minimum Biology elective requirement associated with the BA degree from a minimum of 15 credits to a minimum of 25 credits,
- 4) Increase the minimum Biology elective credit requirement associated with the BS degree from a minimum of 21 credits to a minimum of 31 credits,
- 5) Add the option to select either Biochemistry II (3034) or Biochemistry Lab (3103L) as electives within the BS degree, and



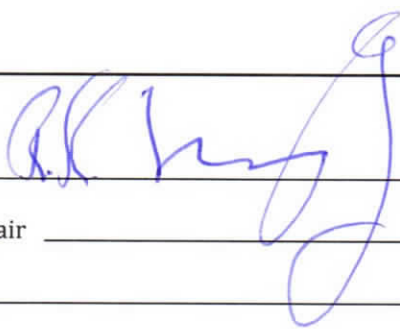
Charles E. Schmidt College of Science  
Department of Biological Sciences  
777 Glades Road  
Boca Raton, FL 33431  
tel: 561.297-3320  
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- 6) Remove the Organic Chemistry Lab (CHM 2211L) and Biochemistry 1 (BCH 3033) from the list approved Biology elective list within the BA option. Students pursuing the Biology BA who wish to complete these courses may use them as free electives—the proposed changes to the BA allow ample space (19-24 credits out of 120) for free electives. These two courses will remain within the list of elective options available to students pursuing the Biology BS.

At this time, we are also updating the list of Biology core and elective lists to:

- 1) Include a number of newly established Biology elective options courses which have recently been added to the catalog,
- 2) To reflect changes to the names and course numbers of existing courses which have recently been modified,
- 3) Clarify the total amount of DIS that can be counted toward the degree.
- 4) Clarify the total amount of CO-OP that can be counted toward the degree.

Lastly, with this revision, the Biology Department also proposes to replace the list of faculty associated with the program with a link to the departmental faculty page within the Biology website ([http://biology.fau.edu/home/departmental\\_faculty.php](http://biology.fau.edu/home/departmental_faculty.php)).

| <b>Approved by</b>   | <b>Date</b> |
|--|-------------|
| Department Chair  | 4/24/17     |
| College Curriculum Chair _____   | _____       |
| College Dean _____   | _____       |
| UUPC Chair _____   | _____       |
| Undergraduate Studies Dean _____   | _____       |
| UFS President _____  | _____       |
| Provost _____  | _____       |

# Biological Sciences

## Faculty:

For a list of active Biology Department Faculty see [http://biology.fau.edu/home/departmental\\_faculty.php](http://biology.fau.edu/home/departmental_faculty.php)

Murphey, R., Chair; Baldwin, J.; Benschoter, B.; Binninger, D.; Brooks, W. R.; Caruso, J.; Dorn, N.; Esiobu, N.; Frazier, E.; Gawlik, D.; Godenschwege, T.; Hartmann, J. X.; Hughes, C.; Jia, K.; Kajiura, S.; Koch-Rose, M.; Kumi-Diaka, J.; Lyons, H. J.; Milton, S.; Narayanan, R.; Noonburg, E.; Proffitt, E.; Salmon, M.; Theisen, T.; Weissbach, H.; Wyneken, J.; Zhang, X-H.

The Department of Biological Sciences offers undergraduate degree programs leading to the Bachelor of Arts (B.A.) degree and Bachelor of Science (B.S.) degree. A grade of "C-" or better (unless otherwise noted in the course description) is required in all biology AND cognate courses taken as part of the requirements for an undergraduate degree in Biological Sciences. However, students must maintain a "C" average in departmental major courses. The department also offers an Honors Program, a minor in Biological Sciences and an undergraduate certificate program in Biotechnology. A Bachelor of Science (B.S.) in Neuroscience and Behavior is offered jointly with the Department of Psychology. This major is detailed under the [Psychology Department section](#).

Master's-level degree programs include the Master of Science (M.S.), the Master of Science in Teaching (M.S.T.) and a [Professional Science Master's Degree in Business Biotechnology](#).

Two combined programs are also available. In one, students earn a B.S./M.S. in Biological Sciences and in the other, a [B.S. in Biological Sciences and an M.S. in Environmental Science](#).

## Recency of Undergraduate Credits Transfer Policy

No credits more than 10 years old may be transferred into or applied to an FAU Biology undergraduate program. Any credits that are transferred in are considered earned in the first semester of enrollment at FAU.

[Link to Bachelor of Science Program](#)

[Link to Additional Undergraduate Offerings](#)

[Link to Combined Programs](#)

[Link to Master's Programs](#)

## Bachelor of Arts Degree

*(Minimum of 120 credits required)*

The Bachelor of Arts (B.A.) degree is intended to provide maximum flexibility for students pursuing study in interdisciplinary areas such as environmental science or secondary school teaching. In addition to the University and College degree requirements, students seeking a Bachelor of Arts degree in Biological Sciences must complete the following core requirements. All degree programs require a total of 120 credits, 45 of which must be upper-division credits.

## Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [Transfer Student Manual](#).

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

|   |                          |              |
|---|--------------------------|--------------|
| <b>Core Requirements</b>  |                          | <b>40-41</b> |
| Biological Principles and Lab   | BSC 1010, 1010L          | 4            |
| Biodiversity and Lab  | BSC 1011, 1011L          | 4            |
| General Chemistry 1   | CHM 2045                 | 3            |
| General Chemistry 1 Lab   | CHM 2045L                | 1            |
| General Chemistry 2   | CHM 2046                 | 3            |
| General Chemistry 2 Lab   | CHM 2046L                | 1            |
| Organic Chemistry 1   | CHM 2210                 | 3            |
| Organic Chemistry 2   | CHM 2211                 | 3            |
| Methods of Calculus   | MAC 2233                 | 3            |
| Experimental Design and Statistical Inference   | PSY 3234                 | 3            |
| Physical Science  | PSC 2121                 | 3            |
| <b>Select at least three of the following four courses:<br/>(the fourth may be used as an elective)</b> |                          |              |
| Genetics  | PCB 3063                 | 4            |
| <del>Molecular and</del> Cell Biology   | PCB <del>4023 3023</del> | 3            |
| Principles of Ecology   | PCB 4043                 | 3            |
| Evolution   | PCB <del>4674 3674</del> | 3            |

|   |                     |                  |
|---|---------------------|------------------|
| <b>Biology Electives</b>  |                     | <b>15<br/>25</b> |
| <b>Select at least 15 a minimum of 25 UPPER-DIVISION credits from the list below:</b> |                     |                  |
| <del>Biochemistry 1</del>   | <del>BCH 3033</del> | <del>3</del>     |
| Vascular Plant Anatomy and Lab  | BOT 3223, 3223L     | 4                |
| Marine Botany and Lab   | BOT 4404, 4404L     | 4                |
| Principles of Plant Physiology and Lab  | BOT 4503, 4503L     | 4                |
| Plant Biotechnology   | BOT 4734C           | 3                |
| <del>Life of a Biologist</del>  | <del>BSC 2844</del> | <del>1</del>     |

|  |                    |     |
|--|--------------------|-----|
| Conservation Biology   | BSC 3052           | 3   |
| Introduction to Biological Research  | BSC 3453           | 1   |
| Biological Research  | BSC 3481           | 2   |
| Molecular Genetics of Aging  | BSC 4022           | 3   |
| Biotechnology 1 Lab  | BSC 4403L          | 2   |
| Biotechnology 2 Lab  | BSC 4427L          | 2   |
| Concepts in Bioinformatics   | BSC 4434C          | 3   |
| Biology of Cancer  | BSC 4806           | 3   |
| Directed Independent Study (no more than 5 credits of DIS can count toward the degree) | BSC 4905           | 1-5 |
| Honors Research  | BSC 4917           | 3   |
| Honors Thesis  | BSC 4918           | 3   |
| Comparative Animal Behavior  | CBH 4024           | 3   |
| Special Topics-<br>(Model Systems Genetics Lab)  | BSC 4930           | 1-3 |
| Organic Chemistry Lab  | CHM 2211L          | 2   |
| General Microbiology and Lab   | MCB 3020,<br>3020L | 4   |
| Medical Bacteriology   | MCB 4203           | 3   |
| Virology   | MCB 4503           | 3   |
| Microbial Ecology  | MCB 4603           | 3   |
| Marine Biodiversity and Lab  | OCB 4032, 4032L    | 4   |
| Marine Biology and Lab   | OCB 4043, 4043L    | 4   |
| Marine Microbiology and Molecular Biology and Lab                                      | OCB 4525, 4525L    | 4   |
| Marine Ecology and Lab   | OCB 4633, 4633L    | 4   |
| Marine Science   | OCE 4006           | 4   |
| Issues in Human Ecology  | PCB 3352           | 3   |
| Human Morphology and Function 1 and Lab  | PCB 3703, 3703L    | 4   |
| Human Morphology and Function 2 and Lab  | PCB 3704, 3704L    | 4   |
| Genetics Lab   | PCB 4067L          | 3   |
| Immunology   | PCB 4233           | 3   |

|  |                     |     |
|--|---------------------|-----|
| Freshwater Ecology and Lab                   | PCB 4301, PCB 4301L | 4   |
| Molecular Genetics                           | PCB 4522            | 3   |
| Genes and Development                        | PCB 4594            | 3   |
| Comparative Animal Physiology and Lab        | PCB 4723, 4723L     | 4   |
| Reproductive Endocrinology                   | PCB 4803            | 3   |
| Cellular Neuroscience and Disease            | PCB 4842            | 3   |
| Practical Cell Neuroscience                  | PCB 4843C           | 3   |
| Invertebrate Zoology and Lab                 | ZOO 2203, 2203L     | 5   |
| Vertebrate Zoology and Lab                   | ZOO 2303, 2303L     | 4   |
| Functional Biology of Marine Animals and Lab | ZOO 4402, 4402L     | 4   |
| Ornithology and Lab                          | ZOO 4472, 4472L     | 4   |
| Topics in Ornithology                        | ZOO 4479C           | 1-4 |
| Comparative Vertebrate Morphogenesis and Lab | ZOO 4690, 4690L     | 5   |
| Principles of Human Neuroanatomy ZOO 4742    | ZOO 4742            | 3   |

**Note:** ~~Biochemistry 1, BCH 3033, is a prerequisite for PCB 4023 and can serve as an elective.~~ PHY 2053 may be substituted for PSC 2121.

**Note:** To earn a baccalaureate degree, students must earn a minimum of 75 percent of all upper-division credits in the major department from FAU. While the above listed courses BSC 2844, ZOO 2203 + L and ZOO 2303 + L are biology department electives, because they are lower division, they may not be used toward fulfillment of the 75 percent requirement.

**Note:** The maximum amount of credit which may be earned through CO-OP is 10 credits; the Department of Biological Sciences does not allow these credits to count as major courses.

#### Environmental Sciences Focus

Complete all of the above and the following electives.

|                         |          |      |
|-------------------------|----------|------|
| <b>Biology Elective</b> |          |      |
| Issues in Human Ecology | PCB 3352 | 3 or |
| Environment and Society | EVR 2017 | 3    |

|                          |          |   |
|--------------------------|----------|---|
| <b>General Electives</b> |          |   |
| Macroeconomics           | ECO 2013 | 3 |
| Microeconomics           | ECO 2023 | 3 |

|                         |          |   |
|-------------------------|----------|---|
| Environmental Economics | ECP 4302 | 3 |
| Environmental Ethics    | PHI 3640 | 3 |

### Bachelor of Science Degree

(Minimum of 120 credits required)

The Bachelor of Science (B.S.) degree is recommended for students planning to be professional biologists in industry or governmental service, for graduate work in the biological sciences and for students planning careers in medicine, dentistry or veterinary medicine. In addition to the University and College degree requirements, students seeking a Bachelor of Science degree in Biological Sciences must complete the following degree requirements.

#### Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the [Transfer Student Manual](#).

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

| Core Requirements (47-49 credits)   |                    |      |
|---|--------------------|------|
| Biological Principles and Lab   | BSC 1010,<br>1010L | 4    |
| Biodiversity and Lab  | BSC 1011,<br>1011L | 4    |
| General Chemistry 1 and Lab   | CHM 2045,<br>2045L | 4    |
| General Chemistry 2 and Lab   | CHM 2046,<br>2046L | 4    |
| Organic Chemistry 1   | CHM 2210           | 3    |
| Organic Chemistry 2   | CHM 2211           | 3    |
| Methods of Calculus   | MAC 2233           | 3 or |
| Calculus with Analytic Geometry 1   | MAC 2311           | 4    |
| College Physics 1   | PHY 2053           | 4 or |
| General Physics 1   | PHY 2048           | 4    |
| College Physics 2   | PHY 2054           | 4 or |
| General Physics 2   | PHY 2049           | 4    |
| General Physics 1 Lab   | PHY 2048L          | 1    |
| General Physics 2 Lab   | PHY 2049L          | 1    |
| Experimental Design and Statistical Inference   | PSY 3234           | 3 or |
| Introduction to Biostatistics   | STA 3173           | 3    |
| <b>Select at least three of the courses below</b><br><i>(the fourth may be used as an elective)</i> |                    |      |
| Genetics  | PCB 3063           | 4    |

|                            |          |   |
|----------------------------|----------|---|
| Molecular and Cell Biology | PCB 4023 | 3 |
| Principles of Ecology      | PCB 4043 | 3 |
| Evolution                  | PCB 4674 | 3 |

| <b>Electives (select at least 21 select a minimum of 31 UPPER DIVISION credits from the list below)</b><br><i>(The Department of Psychology and Department of Biological Sciences jointly administer the Neuroscience and Behavior major. Thus, Biology majors may choose electives from that program list as well.)</i> |                          |     |
|--|--------------------------|-----|
| Biochemistry 1   | BCH 3033                 | 3   |
| Biochemistry 2 OR<br>Biochemistry Lab  | BCH 3034 OR<br>BCH 3103L | 3   |
| Vascular Plant Anatomy and Lab   | BOT 3223, 3223L          | 4   |
| Marine Botany and Lab  | BOT 4404, 4404L          | 4   |
| Principles of Plant Physiology and Lab   | BOT 4503, 4503L          | 4   |
| Plant Biotechnology  | BOT 4734C                | 3   |
| Life of a Biologist  | BSC 2844                 | 1   |
| Conservation Biology   | BSC 3052                 | 3   |
| Introduction to Biological Research  | BSC 3453                 | 1   |
| Biological Research  | BSC 3481                 | 2   |
| Molecular Genetics of Aging  | BSC 4022                 | 3   |
| Biotechnology 1 Lab  | BSC 4403L                | 2   |
| Biotechnology 2 Lab  | BSC 4427L                | 2   |
| Concepts in Bioinformatics   | BSC 4434C                | 3   |
| Biology of Cancer  | BSC 4806                 | 3   |
| Directed Independent Study (no more than 5 credits of<br>DIS can count toward the degree)  | BSC 4905                 | 1-5 |
| Honors Research  | BSC 4917                 | 3   |
| Honors Thesis  | BSC 4918                 | 3   |
| Special Topics-<br>(Model Systems Genetics Lab)  | BSC 4930                 | 1-3 |
| Comparative Animal Behavior  | CBH 4024                 | 3   |
| Organic Chemistry Lab  | CHM 2211L                | 2   |
| Critical Thinking in Environmental Science   | EVS 4021                 | 3   |
| General Microbiology and Lab   | MCB 3020, 3020L          | 4   |
| Medical Bacteriology   | MCB 4203                 | 3   |
| Virology   | MCB 4503                 | 3   |
| Microbial Ecology  | MCB 4603                 | 3   |
| Marine Biodiversity and Lab  | OCB 4032, 4032L          | 4   |
| Marine Biology and Lab   | OCB 4043, 4043L          | 4   |
| Marine Microbiology and Molecular Biology and Lab  | OCB 4525, 4525L          | 4   |
| Marine Ecology and Lab   | OCB 4633, 4633L          | 4   |
| Marine Science   | OCE 4006                 | 4   |
| Issues in Human Ecology  | PCB 3352                 | 3   |
| Human Morphology and Function 1 and Lab  | PCB 3703, 3703L          | 4   |



|  |                     |     |
|--|---------------------|-----|
| Human Morphology and Function 2 and Lab      | PCB 3704, 3704L     | 4   |
| Genetics Lab                                 | PCB 4067L           | 3   |
| Immunology                                   | PCB 4233            | 3   |
| Freshwater Ecology and Lab                   | PCB 4301, PCB 4301L | 4   |
| Molecular Genetics                           | PCB 4522            | 3   |
| Genes and Development                        | PCB 4594            | 3   |
| Comparative Animal Physiology and Lab        | PCB 4723, 4723L     | 4   |
| Reproductive Endocrinology                   | PCB 4803            | 3   |
| Cellular Neuroscience and Disease            | PCB 4842            | 3   |
| Practical Cell Neuroscience                  | PCB 4843C           | 3   |
| Invertebrate Zoology and Lab                 | ZOO 2203, 2203L     | 5   |
| Vertebrate Zoology and Lab                   | ZOO 2303, 2303L     | 4   |
| Functional Biology of Marine Animals and Lab | ZOO 4402, 4402L     | 4   |
| Ornithology and Lab                          | ZOO 4472, 4472L     | 4   |
| Topics in Ornithology                        | ZOO 4479C           | 1-4 |
| Comparative Vertebrate Morphogenesis and Lab | ZOO 4690, 4690L     | 5   |
| Principles of Human Neuroanatomy ZOO 4742    | ZOO 4742            | 3   |

**Note:** To earn a baccalaureate degree, students must earn a minimum of 75 percent of all upper-division credits in the major department from FAU. While the above listed courses BSC 2844, CHM 2211L, ZOO 2203 + L and ZOO 2303 + L are biology department electives, because they are lower division, they may not be used toward fulfillment of the 75 percent requirement.

**Note:** The maximum amount of credit which may be earned through CO-OP is 10 credits; the Department of Biological Sciences does not allow these credits to count as major courses.

Students should consult their faculty advisor concerning additional courses that may be applied to their degree requirements.

## Rebecca Dixon

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**From:** Robert Stackman  
**Sent:** Wednesday, April 12, 2017 12:30 PM  
**To:** Rebecca Dixon  
**Subject:** Re: No conflict with proposed change

Dear Rebecca,

On behalf of the Department of Psychology, I have reviewed the proposed change to the catalog description for the BS degree in Biology program. This message is to confirm that the Department of Psychology has no conflict with this proposed change.

Best regards,

Bob

--

Robert W. Stackman Jr., Ph.D.  
Florida Atlantic University  
Interim Chair and Professor  
Department of Psychology  
BS, 101B  
777 Glades Road  
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email: [rstackma@fau.edu](mailto:rstackma@fau.edu)  
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office – jupiter: MC-19(RE) 110  
phone – jupiter: 561.799.8052

**From:** Rebecca Dixon <[rdixon@fau.edu](mailto:rdixon@fau.edu)>  
**Date:** Wednesday, April 12, 2017 at 12:25 PM  
**To:** Robert Stackman <[rstackma@fau.edu](mailto:rstackma@fau.edu)>  
**Subject:** No conflict with proposed change

Please see attached and confirm that Psychology has no conflict with this proposal.

*Rebecca Dixon*  
Biology Masters Program  
Florida Atlantic University  
777 Glades Road  
SC 136  
Boca Raton, Florida 33431  
<http://biology.fau.edu/academics/graduate/index.php>