BIOL&211 - Majors Cellular

Document Type: Master Course Outline
Proposal Type: Revision
Requester(s): Ruben E Murcia
College: South
Origination Approved: 05/10/2018 - 11:46 AM

BASIC INFORMATION

Requester(s): Ruben E Murcia
College: South Seattle College
Division/Dept: Academic Programs
Dean: Stephanie A Delaney
Peer Reviewer(s): Mark H Ainsworth
                Janet L Kapp
                John A Wiseley

COURSE INFORMATION

Proposed Course Number: BIOL& 211
Prefix: BIOL& Number: 211
☐ Request a new Prefix
☑ This will be a common course

Full Title: Majors Cellular
Abbreviated Title: Majors Cellular

Catalog Course Description:
A three-quarter intro to biology sequence in preparation for advanced study in areas such as medicine, dentistry, cell biology, microbiology, or veterinary medicine. BIOL& 211 focuses on cellular biology, BIOL& 212 on the biological diversity in animals and BIOL& 213 on evolution, ecology and biological principles of prokaryotes, fungi, protists and plants. Lab included

Course Length: 11 Weeks ☐ Request an Exception

Topical Outline:

I. Scientific Method
   a. Apply the scientific methodology to lab investigations
   b. Design a controlled investigation incorporating principles of experimental design
   c. Interpret data collected in lab investigations, data presented in class, and data from web sources

II. Chemistry and biological molecules
   a. Describe the various forms of chemical bonds applicable to the building of biological molecules
   b. Evaluate the importance of water’s properties to life
   c. Explain the role of biological molecules in living things, including carbohydrates, lipids, proteins, and
nucleic acids

III. Cell structure and cell cycle
a. Evaluate the uses of light and electron microscopes in biology
b. Apply the Cell Theory to observations of all life forms
c. Identify the various kinds of cell organelles and describe their function

IV. Metabolism
a. Describe the role of dehydration and hydrolysis reactions in relation to the metabolism of biological molecules
b. Explain the structure and function of enzymes and the factors that affect enzyme activity
c. Explain the role of passive transport, active transport and bulk transport on the work cells perform

V. Cell Respiration and Photosynthesis
a. Explain the purpose, inputs and outputs of each stage of aerobic respiration, including glycolysis, the citric acid cycle and oxidative phosphorylation
b. Describe anaerobic respiration and fermentation pathways used by cells
c. Explain the purpose, inputs and outputs of each stage of photosynthesis, including the light reactions and carbon-dependent reactions
d. Evaluate the importance of C4 and CAM alternatives to C3 carbon fixation

VI. Cell Division, Mitosis and Meiosis
a. Explain the stages and products of mitosis
b. Evaluate the relevance of mitosis to all organisms
c. Explain the stages and products of meiosis
d. Evaluate the role meiosis plays on increasing genetic diversity

VII. Mendelian and non-Mendelian genetics
a. Apply the Law of Segregation and the Law of Independent to predict the outcome of genetic crosses
b. Apply the principles of non-mendelian inheritance patterns, including pleiotropy, multiple alleles, epistasis, polygenic inheritance, and sex-linked inheritance

VIII. Molecular genetics
a. Describe the structure and replication of DNA
b. Explain the Central Dogma of molecular genetics
c. Describe the steps of Transcription and Translation during gene expression
d. Describe factors that regulate gene expression

Optional Topics:
I. Cell Communication
II. Biotechnology
III. Bioinformatics

COURSE CODING

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<tr>
<th>Funding Source:</th>
<th>1..................State</th>
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<td>Institutional Intent:</td>
<td>11.................Academic Transfer</td>
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Select the Distribution Area of the AA Degree that this course will satisfy, if applicable:
(No Distribution Areas Selected)

Will this course transfer to a 4-year university?  Yes

Please Describe:
This course is transferrable to 4-year colleges and universities in Washington and the United States.
Is this course designed for Limited English Proficiency?  No
Is this course designed for Academic Disadvantaged?  No
Does this course have a Workplace Training component?  No

CIP Code:  26.0101

Credits:
Will this course be offered as Variable Credit?  No

List Course Contact Hours
- Lecture (11 Contact Hours : 1 Credit)  33
- Lab (22 Contact Hours : 1 Credit)  44
- Clinical Work (33 Contact Hours : 1 Credit)  0
- Other (55 Contact Hours : 1 Credit)  0

Total Contact Hours  77
Total Credits  5
This is to certify that the above criteria have all been met and all statements are accurate to the best of my knowledge.

Faculty involved in originating this program:

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<tr>
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<tbody>
<tr>
<td>Ruben E Murcia</td>
<td>Ruben E Murcia</td>
<td>5/7/2018</td>
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Dean:

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<td>Stephanie A Delaney</td>
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Results of SSCC Curriculum Coordinating Council Findings

Participating Faculty Response and Remarks

- [X] Recommended for approval
- [ ] Not recommended for approval

Chairman, Curriculum Coordinating Council:

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<td>Janet S Hinson</td>
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Vice President for Instruction:

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