



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:

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

Funding Source: 1.....State

Institutional Intent: 11.....Academic Transfer

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

Request Specific CIP Code

Credits:

Will this course be offered as Variable Credit? No
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:

Ruben E Murcia
Print Name

Ruben E Murcia
Signature

5/7/2018
Date

Dean:

Stephanie A Delaney
Print Name

Stephanie A Delaney
Signature

5/4/2018
Date

Results of SSCC Curriculum Coordinating Council Findings

Participating Faculty Response and Remarks

- Recommended for approval
- Not recommended for approval

Chairman, Curriculum Coordinating Council:

Janet S Hinson
Print Name

Janet S Hinson
Signature

5/9/2018
Date

Vice President for Instruction:

Laura H Hopkins
Print Name

Laura H Hopkins
Signature

5/10/2018
Date