



COURSE OUTLINE : BIOL 50 D

Credit – Degree Applicable

COURSE ID 008410

Cyclical Review: AUGUST 2020

COURSE DISCIPLINE : BIOL
COURSE NUMBER : 50
COURSE TITLE (FULL) : Internship in Biological Sciences
COURSE TITLE (SHORT) : Intern in Biological Sciences

CATALOG DESCRIPTION

BIOL 50 is a discipline-specific course that allows students to earn from 1.0 – 4.0 units for a structured, monitored off-campus internship under the supervision of a faculty advisor. Internship locations may include: natural history museums, zoos and aquariums, biotechnology companies, and research laboratories and field stations at four-year universities. It is designed to provide students with appropriate preparation and work experience in one or more of the following fields within the biological sciences: natural history museum studies, zoo and aquarium science, biotechnology, microbiology, cell and molecular biology, evolutionary theory, anatomy and physiology, conservation biology, and ecology. The purpose of this class is to enhance the students' understanding, skills acquisitions and professional competencies for their target career paths within the biological sciences. Students must work 60 non-paid hours or 75 paid hours per unit earned.

CATALOG NOTES

Note: Internships are arranged by faculty in the Biology Division. This course may be taken 2 times; a maximum of 4 units may be earned. Note: This course is Pass/No Pass only.

Total Lecture Units:0.00

Total Laboratory Units: 1.00-4.00

Total Course Units: 1.00-4.00

Total Lecture Hours:0.00

Total Laboratory Hours: 54.00-216.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 54.00-216.00

Total Out-of-Class Hours: 0.00

Prerequisite: Completion of a Biology course at GCC with a grade of C or better. Recommended Preparation: ENGL 101 and LIB 100.



ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	ENGL	101	Introduction to College Reading and Composition	Read, analyze, and evaluate a variety of primarily non-fiction readings for content, context, and rhetorical merit with consideration of tone, audience, and purpose;	Yes
2	ENGL	101	Introduction to College Reading and Composition	apply a variety of rhetorical strategies in writing unified, well-organized essays directed by a well-reasoned thesis statement with persuasive support;	No
3	ENGL	101	Introduction to College Reading and Composition	develop varied and flexible strategies for generating, drafting, and revising essays;	No
4	ENGL	101	Introduction to College Reading and Composition	analyze stylistic choices in their own writing and the writing of others;	No
5	ENGL	101	Introduction to College Reading and Composition	write timed, in-class essays exhibiting acceptable college-level control of mechanics, organization, development, and coherence;	No
6	ENGL	101	Introduction to College Reading and Composition	integrate the ideas of others through paraphrasing, summarizing, and quoting without plagiarism;	Yes
7	ENGL	101	Introduction to College Reading and Composition	find, evaluate, analyze, and interpret primary and secondary sources, incorporating them into written essays using appropriate documentation format;	Yes
8	ENGL	101	Introduction to College Reading and Composition	proofread and edit essays for presentation so they exhibit no disruptive errors in English grammar, usage, or punctuation.	Yes
9	BIOL	101	General Biology I	identify the properties of lipids, carbohydrates, proteins, and nucleic acids;	No
10	BIOL	101	General Biology I	describe the structure of prokaryotic and eukaryotic cells;	No
11	BIOL	101	General Biology I	explain cell respiration and photosynthesis;	No
12	BIOL	101	General Biology I	describe and identify the different stages in mitosis;	No
13	BIOL	101	General Biology I	describe the relationships between meiosis and Mendelian genetics;	No
14	BIOL	101	General Biology I	solve Mendelian genetics problems, including autosomal, X-linked genes and dihybrid crosses;	No



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15	BIOL	101	General Biology I	describe the processes of DNA replication, transcription, and translation;	No
16	BIOL	101	General Biology I	explain the basic mechanisms of gene regulation in prokaryotes and eukaryotes.	No
17	BIOL	101	General Biology I	demonstrate proper use of laboratory equipment including the microscope, spectrophotometer, and micropipettes;	Yes
18	BIOL	101	General Biology I	demonstrate proficiency with data collection, analysis, and graphical representation.	Yes
19	BIOL	102	General Biology	Discuss the evolution of land plants from chlorophyte ancestors and their adaptations to a terrestrial existence;	No
20	BIOL	102	General Biology	describe the anatomy and physiology of vascular plants in relation to nutrition, transport, hormonal control, and reproduction;	No
21	BIOL	102	General Biology	describe the anatomy and physiology of the major organ systems of animals: respiratory, circulatory, digestive, nervous, reproductive, and excretory/osmoregulatory;	No
22	BIOL	102	General Biology	explain the basic principles of animal developmental biology;	No
23	BIOL	102	General Biology	describe the phylogenetics of the major phyla of living organisms;	No
24	BIOL	102	General Biology	explain the historical background leading to the development of the theory of evolution by natural selection;	No
25	BIOL	102	General Biology	discuss the evidence for both microevolution and macroevolution;	Yes
26	BIOL	102	General Biology	describe the historical background leading to our current ideas regarding the origin of life;	No
27	BIOL	102	General Biology	explain the major principles of population genetics including Hardy-Weinberg equilibrium, natural selection, non-random mating, genetic drift, gene flow, and mutation;	No
28	BIOL	102	General Biology	describe important ecological principles including population growth, competition, and predation, ecosystems, and island biogeography.	Yes
29	BIOL	123	Evolution	Describe Darwin's contribution to our understanding of how evolution works;	No



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30	BIOL	123	Evolution	describe the major evolutionary forces that act to change populations over time;	Yes
31	BIOL	123	Evolution	explain the processes of speciation and adaptive radiation;	No
32	BIOL	123	Evolution	describe key events in the history of life on earth, including the origin of life and major extinction events;	No
33	BIOL	123	Evolution	identify some important finds in the fossil record and describe what they demonstrate about the nature of evolution;	No
34	BIOL	123	Evolution	describe what is known about human evolution and the impact of our evolutionary past on modern humans.	No
35	BIOL	112	Microbiology	demonstrate a general understanding of the taxonomy and major characteristics of the various microorganisms	Yes
36	BIOL	112	Microbiology	demonstrate general knowledge of the physical and chemical structure of prokaryotes Biology 112 Page 2 of 5 and eukaryotes	No
37	BIOL	112	Microbiology	demonstrate an understanding of the biochemical processes of the cell, including cell respiration, DNA replication, genetic recombination, transcription, translation, and cellular transport	No
38	BIOL	112	Microbiology	demonstrate an understanding of the physical and chemical methods and mechanisms used to control microbial growth	No
39	BIOL	112	Microbiology	demonstrate an understanding of the disease process of various microorganisms	No
40	BIOL	112	Microbiology	demonstrate proper aseptic techniques and proficiency in performing various staining procedures and biochemical tests on microorganisms	No
41	BIOL	122	Introduction to Biology	Describe the structure of atoms, the properties of water and structure and function of biological macromolecules;	No
42	BIOL	122	Introduction to Biology	describe the flow of information from DNA to protein;	No
43	BIOL	122	Introduction to Biology	describe the mechanisms of evolution including natural selection;	No
44	BIOL	122	Introduction to Biology	describe basic ecological principles and the impact of humans on the environment;	No



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45	BIOL	122	Introduction to Biology	identify the defining characteristics of major groups of organisms;	Yes
46	BIOL	122	Introduction to Biology	compare prokaryotic and eukaryotic cells, and describe the structure and function of eukaryotic organelles;	No
47	BIOL	122	Introduction to Biology	describe the principles of inheritance and solve basic Mendelian genetics problems;	No
48	BIOL	122	Introduction to Biology	describe basic principles of mammalian physiology.	No
49	BIOL	120	Human Anatomy	identify major structures in the 11 systems of the human body;	No
50	BIOL	120	Human Anatomy	identify the basic features of cells and their organization as tissues;	No
51	BIOL	120	Human Anatomy	identify the four major tissue types;	No
52	BIOL	120	Human Anatomy	identify subtypes of tissues within each major tissue type (e.g., areolar connective tissue, cardiac muscle, simple vs. stratified epithelium);	No
53	BIOL	120	Human Anatomy	identify the location and function of subtypes of tissues in various organ systems;	No
54	BIOL	120	Human Anatomy	describe the structure-function relationship of each organ system (e.g., the nephron and its role in the kidney);	No
55	BIOL	120	Human Anatomy	demonstrate proper use of a microscope to identify major tissue types in histological slides;	No
56	BIOL	120	Human Anatomy	identify all major bones and bone markings using human bones and models;	No
57	BIOL	120	Human Anatomy	identify all major muscles (including knowledge of origin, insertion, and action) using anatomical models;	No
58	BIOL	120	Human Anatomy	identify all of the major structures of organ systems using models and tissue slides;	No
59	BIOL	120	Human Anatomy	identify major organs and structures in a human cadaver;	No
60	BIOL	120	Human Anatomy	demonstrate proper dissection techniques for organs (e.g., cow eye, sheep brain).	Yes
61	BIOL	125	Marine Biology	explain concepts in general biology using examples from the marine environment;	Yes
62	BIOL	125	Marine Biology	identify the basic geological, chemical, and physical characteristics of the marine environment;	No
63	BIOL	125	Marine Biology	describe some the potential adaptations that allow organisms to survive and reproduce in the marine environment;	No



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64	BIOL	125	Marine Biology	identify the major phylogenetic groups of marine organisms and describe some of the evolutionary trends within them;	No
65	BIOL	125	Marine Biology	compare and contrast the major marine ecosystems;	No
66	BIOL	125	Marine Biology	identify the problems caused by human impact on the marine environment and its resources.	No
67	BIOL	115	Human Biology	Identify the body systems, their organs and functions;	No
68	BIOL	115	Human Biology	describe the structure and functions of the cell and its organelles;	No
69	BIOL	115	Human Biology	recognize the primary tissues of the human body and their relationship to body organs;	No
70	BIOL	115	Human Biology	explain the homeostatic mechanisms of human organ systems;	No
71	BIOL	115	Human Biology	describe the cause and effect of selected major diseases and conditions of the human body;	No
72	BIOL	115	Human Biology	describe the scientific method and apply it to the homeostasis of the human body;	Yes
73	BIOL	115	Human Biology	correctly use basic body directional terminology;	No
74	BIOL	115	Human Biology	explain the effects of heredity, development and aging on homeostasis.	No
75	BIOL	131	Regional Natural History	Discuss the climate, geology and bio-geography of the study area;	No
76	BIOL	131	Regional Natural History	describe the predominant ecological characteristics of the major ecosystems visited by the class on field trips;	No
77	BIOL	131	Regional Natural History	identify and discuss the basic principles of ecology;	No
78	BIOL	131	Regional Natural History	describe some of the potential adaptations that allow organisms in the study area to survive and reproduce;	No
79	BIOL	131	Regional Natural History	identify the major phylogenetic groups of organisms in the study area and describe some of the evolutionary trends within them;	Yes



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80	BIOL	131	Regional Natural History	identify human impacts on the study environment and current conservation efforts in the area.	No
81	LIB	100	Critical Approaches to Information Research	recognize the ethical use of information and proper attribution;	Yes
82	LIB	100	Critical Approaches to Information Research	formulate a research question of an appropriate scope for an assignment;	Yes
83	LIB	100	Critical Approaches to Information Research	recognize and apply evaluation criteria;	Yes
84	LIB	100	Critical Approaches to Information Research	recognize how context contributes to the construction of authority;	No
85	LIB	100	Critical Approaches to Information Research	articulate how the information process determines the nature of information sources;	No
86	LIB	100	Critical Approaches to Information Research	articulate how the process of information creation affects the veracity and reliability of sources;	No
87	LIB	100	Critical Approaches to Information Research	develop strategic search practices in order to locate the background and origin of a source;	No
88	LIB	100	Critical Approaches to Information Research	analyze a source for its value as a commodity that has economic, cultural, political, and social facets.	No



EXIT STANDARDS

- 1 demonstrate an understanding of the minimum academic and professional qualifications for employment and advancement within the target career;
- 2 demonstrate the proper interpersonal skills for the work environment at the specific discipline;
- 3 demonstrate an understanding of the scientific process and the ethical implications of research in the specific discipline.

STUDENT LEARNING OUTCOMES

- 1 demonstrate basic occupational competencies required for employment in the target career/discipline

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Orientation (prior to internship work) <ul style="list-style-type: none"> • Professional standards, behavior and ethical code of conduct • Appropriate attire • Professional behavior • Being aware/avoiding sexual harassment • Job skill requirements • Self-reflection and problem solving • Developing learning objectives • Employer-student contract 	0	24	24
2	Internship (48-192 hours TBA) <ul style="list-style-type: none"> • The methods and research projects will vary according to the specific field of research of the host institution. • Whenever possible, students will be encouraged to rotate through different laboratories or research projects in order to maximize exposure to the diversity of techniques and skills used at the host institution. • Students taking the course for a second time will work either 1) in research areas not covered during their first internship, or 2) in a more advanced research environment with greater responsibility for a project. 	0	192	192
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OUT OF CLASS ASSIGNMENTS

- 1 gather, evaluate and synthesize information through library research;
- 2 prepare an oral presentation or poster based on the work at the host institution;
- 3 participate in a scientific conference in the specific area of research of the host institution;
- 4 prepare a draft manuscript to be submitted for publication.

METHODS OF EVALUATION

- 1 oral presentation of work at the host institution or GCC;
- 2 poster presentation;
- 3 laboratory reports or preparation of a laboratory notebook;
- 4 evaluation of student performance by the faculty advisor in consultation with staff at the host internship institution.

METHODS OF INSTRUCTION

- Lecture
- Laboratory
- Studio
- Discussion
- Multimedia
- Tutorial
- Independent Study
- Collaboratory Learning
- Demonstration
- Field Activities (Trips)
- Guest Speakers
- Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	ISBN	Date
No required textbooks. Faculty advisor and staff at the host institution may assign readings from discipline-specific sources.							

