

General Education Review Committee Agenda

February 15, 2008
ADM 201
12:30 p.m. – 1:30 p.m.

I. Call to Order

Roll

() Erik Hirschman	Mat-Su/ UAB	Humanities/ Social Sciences
() Caedmon Liburd	UAB	
() Patricia Fagan	CAS	Humanities
() Bob Capuozzo	COE	
() Fred Barbee	CBPP/UAB	
() Jeane Breinig	CAS	Written Communication
() Len Smiley	CAS/UAB	Quantitative Skills
() Suzanne Forster	CAS/UAB	
() Robin Wahto	CTC/UAB	
() Walter Olivares	CAS	Fine Arts
() Tom Miller	OAA	Guest
() Gail Holtzman	CHSW/UAB	Social Sciences
() Grant Baker	SOENGR/ UAB	
() Barbara Harville	CAS	Oral Communication
() vacant		Natural Science
() Karl Wing	USUAA	

II. Approval of Agenda (pg. 1)

III. Approval of Summary (pg. 2-3)

IV. Chair's Report

V. Course Action Requests

Chg LING A101 The Nature of Language (3 cr) (3+0)
No revisions

Chg BIOL A115 Fundamentals of Biology I (4 cr) (3+3) (pg. 4-10)

Chg BIOL A116 Fundamentals of Biology II (4 cr) (3+3) (pg. 11-15)

Chg BIOL A178 Fundamentals of Oceanography (3 cr) (3+0) (cross listed w/ GEOL A178)
(pg. 16-19)

Chg GEOL A178 Fundamentals of Oceanography (3 cr) (3+0) (cross listed w/ BIOL A178)
(pg. 20-23)

Chg BIOL A179 Fundamentals of Oceanography Laboratory (1 cr) (0+3) (cross listed w/ GEOL
A179) (pg. 24-27)

Chg GEOL A179 Fundamentals of Oceanography Laboratory (1 cr) (0+3) (cross listed w/ BIOL
A179) (pg. 28-31)

VI. Old Business

VII. New Business

VIII. Informational Items and Adjournment

General Education Review Committee Summary

February 8, 2008
ADM 201
12:30 p.m. – 1:30 p.m.

I. Call to Order

Roll

(x) Erik Hirschman	Mat-Su/ UAB	Humanities/ Social Sciences
(e) Caedmon Liburd	UAB	
(x) Patricia Fagan	CAS	Humanities
(x) Bob Capuozzo	COE	
() vacant	CBPP/UAB	
(x) Jeane Breinig	CAS	Written Communication
(x) Len Smiley	CAS/UAB	Quantitative Skills
(x) Suzanne Forster	CAS/UAB	
(e) Robin Wahto	CTC/UAB	
() Walter Olivares	CAS	Fine Arts
(e) Tom Miller	OAA	Guest
() Gail Holtzman	CHSW/UAB	Social Sciences
() Grant Baker	SOENGR/ UAB	
(x) Barbara Harville	CAS	Oral Communication
() vacant		Natural Science
() Karl Wing	USUAA	

II. Approval of Agenda (pg. 1)

Approved

III. Approval of Summary (pg. 2-3)

Approved

IV. Chair's Report

V. Course Action Requests

Chg LING A101 The Nature of Language (3 cr) (3+0)

Tabled- No revisions received

Add THR A492 Senior Seminar (3 cr) (3+0) (pg. 4-8)

Approved

Chg PHIL A101 Introduction to Logic (3 cr) (3+0) (pg. 9-12)

Approved

Chg PHIL A201 Introduction to Philosophy (3 cr) (3+0) (pg. 13-16)

Approved

Chg PHIL A211 History of Philosophy I (3 cr) (3+0) (pg. 17-21)

Approved

Chg PHIL A212 History of Philosophy II (3 cr) (3+0) (pg. 22-27)

Approved

Chg PHIL A301 Ethics (3 cr) (3+0) (pg. 28-33)

Approved

Chg PHIL A313 Eastern Philosophy & Religion (3 cr) (3+0) (pg. 34-39)

Approved

Chg PHIL A314 Western Religions (3 cr) (3+0) (pg. 40-46)
Approved

VI. Old Business

VII. New Business

VIII. Informational Items and Adjournment

Meeting adjourned @ 1:58 p.m.



Curriculum Action Request

University of Alaska Anchorage

Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College AS CAS		1b. Division AMSC Division of Math Science		1c. Department Biological Sciences	
2. Course Prefix BIOL	3. Course Number A115	4. Previous Course Prefix & Number		5a. Credits/CEU 4	5b. Contact Hours (Lecture + Lab) (3+3)
6. Complete Course/Program Title Fundamentals of Biology I <small>Abbreviated Title for Transcript (30 character)</small>					
7. Type of Course <input checked="" type="checkbox"/> Academic <input type="checkbox"/> Non-credit <input type="checkbox"/> CEU <input type="checkbox"/> Professional Development					
8. Type of Action <input checked="" type="checkbox"/> Course <input type="checkbox"/> Program			9. Repeat Status No # of Repeats Max Credits		
<input type="checkbox"/> Add <input type="checkbox"/> Prefix <input type="checkbox"/> Course Number <input checked="" type="checkbox"/> Change <input type="checkbox"/> Credits <input type="checkbox"/> Contact Hours <small>(mark appropriate boxes)</small> <input type="checkbox"/> Title <input type="checkbox"/> Repeat Status <input type="checkbox"/> Delete <input type="checkbox"/> Grading Basis <input type="checkbox"/> Cross-Listed/Stacked <input type="checkbox"/> Course Description <input type="checkbox"/> Course Prerequisites <input type="checkbox"/> Test Score Prerequisites <input type="checkbox"/> Co-requisites <input type="checkbox"/> Other Restrictions <input type="checkbox"/> Registration Restrictions <input type="checkbox"/> Class <input type="checkbox"/> Level <input type="checkbox"/> College <input type="checkbox"/> Major <input checked="" type="checkbox"/> Other Updating CCG			10. Grading Basis <input checked="" type="checkbox"/> A-F <input type="checkbox"/> P/NP <input type="checkbox"/> NG		
			11. Implementation Date semester/year From: Fall/2008 To: /99999		
			12. <input type="checkbox"/> Cross Listed with _____ <input type="checkbox"/> Stacked with _____ Cross-Listed Coordination Signature		
13. List any programs or college requirements that require this course BA Biology; BS Biology; BS Natural Science, minor Biology; and BEd Education (Secondary).					
14. Coordinate with Affected Units: CAS, CBPP, C-Ed, CH&SW, CTC, Engineering, U Honors Coll, all extended sites. E-mail to all UAA faculty. See attached Coordination Form. <div style="text-align: right;">Department, School, or College _____ Initiator Signature _____ Date _____</div>					
15. <input checked="" type="checkbox"/> General Education Requirement <input type="checkbox"/> Oral Communication <input type="checkbox"/> Written Communication <input type="checkbox"/> Quantitative Skills <input type="checkbox"/> Humanities <input type="checkbox"/> Fine Arts <input type="checkbox"/> Social Sciences <input checked="" type="checkbox"/> Natural Sciences <input type="checkbox"/> Integrative Capstone					
16. Course Description A survey of molecular biology, genetics, and homeostasis in the context of evolution. Special Note: One 3-hour lab per week. BIOL A115 and A116 are core courses in biology and are prerequisites to further courses in biological sciences.					
17a. Course Prerequisite(s) (list prefix and number) (CHEM A105 or concurrent enrollment) and (CHEM A105L or concurrent enrollment)		17b. Test Score(s)		17c. Co-requisite(s) (concurrent enrollment required) BIOL A115L	
17d. Other Restriction(s) <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Class <input type="checkbox"/> Level		17e. Registration Restriction(s) (non-codable) One year of high school biology, one year of high school chemistry, and working knowledge of the metric system.			
18. <input checked="" type="checkbox"/> Mark if course has fees					
19. Justification for Action Updating student outcomes to meet current GER descriptors.					

Initiator (faculty only) Date

Initiator (PRINT NAME)

____ Approved
____ Disapproved: _____
Department Chairperson Date

____ Approved
____ Disapproved: _____
Curriculum Committee Chairperson Date

____ Approved
____ Disapproved: _____
Dean/Director of School/College Date

____ Approved
____ Disapproved: _____
Undergraduate or Graduate
Academic Board Chairperson Date

____ Approved
____ Disapproved: _____
Provost or Designee Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Implementation Date:

Fall 2008

II. Course Information

- A. College:** College of Arts and Sciences
- B. Course Subject/Number:** BIOL A115
- C. Course Title:** Fundamentals of Biology I
- D. Course Description:** A survey of molecular biology, genetics, and homeostasis in the context of evolution. Special Note: One 3-hour lab per week. BIOL A115 and A116 are core courses in biology and are prerequisites to further courses in biological sciences.
- E. Credit Hours:** 4
- F. Contact Hours:** 3 + 3
- G. Grading Basis:** A-F
- H. Status of Course Relative to Degree Program:** This course satisfies Natural Science category of the General Education Requirements and is a core course for B.A. and B.S. degree programs in Biology; B.S. in Natural Science; minor in Biology; and B.Ed. (Secondary Education-Biology) in Education
- I. Course Fees (Yes/No):**
- J. Lab Fees (Yes/No):** Yes
- K. Coordination:** CAS, CBPP, C-Ed, CH&SW, CTC, Engineering, U Honors Coll, all extended sites. Email to all UAA faculty. See attached Coordination Form.
- L. Prerequisites/Corequisite:** Prerequisites: (CHEM A105 or concurrent enrollment) and (CHEM A105L or concurrent enrollment);
Corequisite: BIOL A115L
- M. Registration Restrictions:** One year of high school biology, one year of high school chemistry, and working knowledge of the metric system.

III. Course Activities:

Course conducted both as a lecture with classroom discussions and laboratory activities that reinforce lectures.

IV. Evaluation:

Course is graded A-F. Comprehensive tests will be used with a mixture of essay, multiple choice, and diagram interpretation to evaluate the ability of the student to understand the concepts presented in the course. The grade will be based on how well the student masters the subject matter.

V. Course Level Justification:

The exercises and content of this first semester core-course are designed for lower-division BA and BS students majoring in biology and BS students in natural sciences. This course has a 100-level CHEM prerequisite/corequisite which enhances student comprehension and understanding of molecular, genetic and homeostatic principles in the context of evolution.

VI. Course Outline

- 1.0 How Populations Evolve
 - 1.1 Genetics of Populations
 - 1.2 Causes of Microevolution
 - 1.3 Genetic Basis of Evolution
 - 1.4 Seedless vascular plants
 - 1.5 Nature and Extent of Variation
- 2.0 The Origin of Species
 - 2.1 The Species Question
 - 2.2 Reproductive Isolating Mechanisms
 - 2.3 Mechanisms of Speciation
 - a. Allopatric Speciation
 - b. Sympatric Speciation
 - c. Parapatric Speciation
 - 2.4 Genetic Mechanisms of Speciation
 - 2.5 Punctuated Equilibrium
- 3.0 Macroevolution
 - 3.1 The Fossil Record
 - 3.2 Tracing Phylogeny: Systematics
 - 3.3 Macroevolution Defined
 - 3.4 Mechanisms of Macroevolution
 - 3.5 Extinction
- 4.0 A Tour of the Cell
 - 4.1 How Cells are Studied
 - 4.2 Geography of the Cell: An Overview
 - 4.3 The Nucleus
 - 4.4 Ribosomes
 - 4.5 Endoplasmic System
 - 4.6 Mitochondria and Chloroplasts
 - 4.7 Cytoskeleton
 - 4.8 Cell Surface
- 5.0 Structure and Function of Macromolecules
 - 5.1 Polymers
 - 5.2 Carbohydrates
 - 5.3 Lipids
 - 5.4 Proteins
 - 5.5 Nucleic acids
- 6.0 Review of Cell Structure
 - 6.1 Nutritional requirement of plants
 - 6.2 Soil
 - 6.3 Nitrogen assimilation by plants
 - 6.4 Some nutritional adaptations of plants
- 7.0 Introduction to Metabolism
 - 7.1 Metabolic map
 - 7.2 Energy and basic principles
 - 7.3 Chemical Energy and Life
 - 7.4 ATP and cellular work
 - 7.5 Enzymes
 - 7.6 Control of Metabolism
- 8.0 Cell Homeostasis: Membrane Structure and Function

- 8.1 Models of membrane structure
- 8.2 Transport of small molecules
- 8.3 Transport of large molecules
- 9.0 Cell Homeostasis: Cellular Respiration
 - 9.1 ATP and cellular work
 - 9.2 Respiration as an oxidation-reduction process
 - 9.3 Cellular respiration
 - 9.4 Glycolysis
 - 9.5 Krebs cycle
 - 9.6 Electron transport chain and oxidative phosphorylation
 - 9.7 Cellular respiration: An overview
 - 9.8 Fermentation
- 10.0 Cell Homeostasis: Photosynthesis
 - 10.1 Chloroplasts
 - 10.2 How plants make food
 - 10.3 Light reactions of photosynthesis
 - 10.4 Calvin cycle
 - 10.5 Photorespiration
 - 10.6 C4 plants
 - 10.7 CAM plants
- 11.0 Cell Homeostasis: Reproduction of Cells
 - 11.1 Introduction to eukaryotic chromosomes
 - 11.2 Cell cycle
 - 11.3 Cell division: mitosis
 - 11.4 Cell division: control
- 12.0 Cell Homeostasis: Meiosis and Sexual Life Cycles
 - 12.1 Genes, DNA and chromosomes
 - 12.2 Sexual and asexual reproduction
 - 12.3 Sexual life cycles: Humans
 - 12.4 Variation in sexual life cycles
 - 12.5 Meiosis
 - 12.6 Comparison of mitosis and meiosis
 - 12.7 Sexual sources of genetic variation
 - 12.8 Genetic variation and evolution
- 13.0 Cell Homeostasis: Mendel and the Gene Idea
 - 13.1 Mendel's model
 - 13.2 Extending Mendelian genetics
 - 13.3 Mendelian inheritance in human populations
- 14.0 Cell Homeostasis: Chromosomal basis for inheritance
 - 14.1 Linked genes
 - 14.2 Recombination of unlinked genes: independent assortment
 - 14.3 Recombination of linked genes: crossing-over
 - 14.4 Genetic maps based on crossover data
 - 14.5 Sex chromosomes and sex-linked inheritance
 - 14.6 Chromosomal mutations
 - 14.7 Extranuclear inheritance
- 15.0 Cell Homeostasis: Molecular Basis of Inheritance
 - 15.1 Search for genetic material
 - 15.2 Discovery of DNA double helix
 - 15.3 DNA replication: basic concepts

- 15.4 DNA replication: a closer view
- 15.5 DNA repair
- 16.0 From Gene to Protein
 - 16.1 Overview of protein synthesis
 - 16.2 Genetic Code
 - 16.3 Transcription
 - 16.4 Translation
 - 16.5 Protein synthesis in eukaryotes versus prokaryotes
 - 16.6 RNA processing in eukaryotes
 - 16.7 Effect of mutations on proteins
 - 16.8 What is a gene?

VII. Instructional Goals and Student Outcomes:

A. The instructor will:

Present the concepts fundamental to the study of molecular biology, genetics and homeostasis in the context of evolution.

B. Student Outcomes:

Students will be able to:	Assessment Method
Apply the scientific method through the formulation of hypotheses, proposing of testable predictions, and then testing to reach supportable conclusions about biological processes and systems	Written exams, homework
Confirm an understanding of the fundamentals of molecular biology, genetics and homeostasis in the context of evolution	Written exams, homework
Provide an overview of the major discoveries and advances in biology that have impacted thought and technology throughout history.	Written exams, homework
Identify ways in which biology has advanced the understanding of important evolutionary processes	Written exams, homework
Work with the tools and in the settings used in molecular biology, genetics and homeostasis in the context of evolution	Laboratory practical exams, Lab books
Use instrumentation employed by biologists in a lab research setting; make critical observations on the diversity of molecular structures, metabolic pathways and genetic structures in biological systems; and accurately record and analyze their data/observations.	Laboratory assignments, practical exams

VIII. Suggested Text(s):

Campbell, N.A., J.B.Reese, L.A.Urry, M.L.Cain, S.A.Wasserman, P.V. Minorsky & R.B.Jackson; 2008. Biology. 8th Ed. Benjamin Cummings. California.

IX. Bibliography:

- Campbell, N.A. & J.B. Reese; 2007. Biology. 7th ed. Pearson/Benjamin Cummings.
- Purves, W.K., G.H. Orians, H.C. Heller & D. Sadava; 2008. Life. The Science of Biology. 8th ed. Sinauer-Freeman.
- Raven, P.K. & G.B. Johnson; 2008. Biology. 8th ed. WC Brown/McGraw-Hill.
- Russell, P.J., S.L. Wolfe, P.E. Hertz, C. Starr & B. McMillan; 2008. Biology The Dynamic Science. Thompson Higher Education.
- Solomon, E.P., L.R. Berg, & M. Vilee; 2008. Biology. 8th ed. Saunders College Publishing.
- Science. American Association for the Advancement of Science. New York.
- Biotechniques. Eaton Publishing Company. Massachusetts.
- Scientific American. Scientific American. New York.
- Discover. Disney Publishing. California.

Curriculum Coordination Form

Notification Date: 16 January 2008

Initiating unit: Biological Sciences

Affected unit(s): CAS, CBPP, COE, CHSW, CTC, SOE, HC and Deans/Directors of Anchorage and extended sites: MatSu, KPC, KOC, PWSCC

Course Prefix and Number: BIOL Previous Prefix and Number: A115, A116, A178, A179

Complete Course/Program Title: A115: Fundamentals of Biology I; A116: Fundamentals of Biology II; A178: Fundamentals of Oceanography; A179: Fundamentals of Oceanography Lab

Previous Course/Program Title: No Change

Description of Action: Updating student outcomes to meet current GER descriptors; fine tuning course description for BIOL A116.

Supporting documentation of the proposal is attached.

Initiating faculty are also REQUIRED to send an email to uaa-faculty@uaa.alaska.edu describing the proposal, including the proposed action and the course prefix, number, course description, prerequisite, and any other relevant information.

Any questions concerning the proposed changes may be addressed to the appropriate department chair, or the chair of the appropriate curriculum committee. Written comments may also be sent to the UAB or GAB, in care of the Governance Office, at the following address:

University of Alaska Anchorage
Governance Office, ADM 213
3211 Providence Drive
Anchorage, AK 99508



Curriculum Action Request

University of Alaska Anchorage

Proposal to Initiate, Add, Change, or Delete a Course or Program of Study

1a. School or College AS CAS		1b. Division AMSC Division of Math Science		1c. Department Biological Sciences	
2. Course Prefix BIOL	3. Course Number A116	4. Previous Course Prefix & Number		5a. Credits/CEU 4	5b. Contact Hours (Lecture + Lab) (3+3)
6. Complete Course/Program Title Fundamentals of Biology II <small>Abbreviated Title for Transcript (30 character)</small>					
7. Type of Course <input checked="" type="checkbox"/> Academic <input type="checkbox"/> Non-credit <input type="checkbox"/> CEU <input type="checkbox"/> Professional Development					
8. Type of Action <input checked="" type="checkbox"/> Course <input type="checkbox"/> Program			9. Repeat Status No # of Repeats Max Credits		
<input type="checkbox"/> Add <input type="checkbox"/> Prefix <input type="checkbox"/> Course Number <input checked="" type="checkbox"/> Change <input type="checkbox"/> Credits <input type="checkbox"/> Contact Hours <small>(mark appropriate boxes)</small> <input type="checkbox"/> Title <input type="checkbox"/> Repeat Status <input type="checkbox"/> Delete <input type="checkbox"/> Grading Basis <input type="checkbox"/> Cross-Listed/Stacked <input checked="" type="checkbox"/> Course Description <input checked="" type="checkbox"/> Course Prerequisites <input type="checkbox"/> Test Score Prerequisites <input type="checkbox"/> Co-requisites <input type="checkbox"/> Other Restrictions <input type="checkbox"/> Registration Restrictions <input type="checkbox"/> Class <input type="checkbox"/> Level <input type="checkbox"/> College <input type="checkbox"/> Major <input checked="" type="checkbox"/> Other Updating CCG			10. Grading Basis <input checked="" type="checkbox"/> A-F <input type="checkbox"/> P/NP <input type="checkbox"/> NG		
			11. Implementation Date <small>semester/year</small> From: Fall/2008 To: /99999		
			12. <input type="checkbox"/> Cross Listed with _____ <input type="checkbox"/> Stacked with _____ Cross-Listed Coordination Signature		
13. List any programs or college requirements that require this course BA Biology; BS Biology; BS Natural Science, minor Biology; and BEd Education (Secondary).					
14. Coordinate with Affected Units: CAS, CBPP, C-Ed, CH&SW, CTC, Engineering, U Honors Coll, all extended sites. E-mail to all UAA faculty. See attached Coordination Form. <div style="text-align: right;">Department, School, or College _____ Initiator Signature _____ Date _____</div>					
15. <input checked="" type="checkbox"/> General Education Requirement <input type="checkbox"/> Oral Communication <input type="checkbox"/> Written Communication <input type="checkbox"/> Quantitative Skills <input type="checkbox"/> Humanities <input type="checkbox"/> Fine Arts <input type="checkbox"/> Social Sciences <input checked="" type="checkbox"/> Natural Sciences <input type="checkbox"/> Integrative Capstone					
16. Course Description Continuation of topics addressed in BIOL A115, with emphasis on biodiversity, ecology, and survey of life, relating structure to function in the context of evolution. Special Note: One 3-hour lab per week. BIOL A115 and A116 are core courses in biology and are prerequisites to further courses in biological sciences.					
17a. Course Prerequisite(s) (list prefix and number) BIOL A115 and [CHEM A105 and CHEM A105L] and [(Chem A106 or concurrent enrollment) and (CHEM A106L or concurrent enrollment)].		17b. Test Score(s)		17c. Co-requisite(s) (concurrent enrollment required) BIOL A116L	
17d. Other Restriction(s) <input type="checkbox"/> College <input type="checkbox"/> Major <input type="checkbox"/> Class <input type="checkbox"/> Level		17e. Registration Restriction(s) (non-codable)			
18. <input checked="" type="checkbox"/> Mark if course has fees					
19. Justification for Action Fine tuning course description. Updating student outcomes to meet current GER descriptors.					

Initiator (faculty only) Date

Initiator (PRINT NAME)

____ Approved
____ Disapproved: _____
Department Chairperson Date

____ Approved
____ Disapproved: _____
Curriculum Committee Chairperson Date

____ Approved
____ Disapproved: _____
Dean/Director of School/College Date

____ Approved
____ Disapproved: _____
Undergraduate or Graduate
Academic Board Chairperson Date

____ Approved
____ Disapproved: _____
Provost or Designee 11 Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Implementation Date:

Fall 2008

II. Course Information

- A. College:** College of Arts and Sciences
- B. Course Subject/Number:** BIOL A116
- C. Course Title:** Fundamentals of Biology II
- D. Course Description:** Continuation of topics addressed in BIOL A115, with emphasis on biodiversity, ecology, and survey of life, relating structure to function in the context of evolution. Special Note: One 3-hour lab per week. BIOL A115 and A116 are core courses in biology and are prerequisites to further courses in biological sciences.
- E. Credit Hours:** 4
- F. Contact Hours:** 3 + 3
- G. Grading Basis:** A-F
- H. Status of Course Relative to Degree Program:** This course satisfies Natural Science category of the General Education Requirements, and is a core course for B.A. and B.S. degree programs in Biology; B.S. in Natural Science; minor in Biology; and B.Ed. (Secondary Education-Biology) in Education
- I. Course Fees (Yes/No):**
- J. Lab Fees (Yes/No):** Yes
- K. Coordination:** CAS, CBPP, C-Ed, CH&SW, CTC, Engineering, U Honors Coll, all extended sites. Email to all UAA faculty. See attached Coordination Form.
- L. Prerequisites/Corequisite:** Prerequisites: BIOL A115 and [CHEM A105 and CHEM A105L] and [(CHEM A106 or concurrent enrollment) and (CHEM A106L or concurrent enrollment)].
Co-requisite: BIOL A116L.
- M. Registration Restrictions:**

III. Course Activities:

Course conducted both as a lecture with classroom discussions and laboratory activities that reinforce lectures.

IV. Evaluation:

Course is graded A-F. Comprehensive tests will be used with a mixture of essay, multiple choice, and diagram interpretation to evaluate the ability of the student to understand the concepts presented in the course. The grade will be based on how well the student masters the scientific papers and subject matter.

V. Course Level Justification:

The exercises and content of this second semester core-course are designed for lower-division BA and BS students majoring in biology and BS students in natural sciences. This course has BIOL A115, CHEM A105 and CHEM 105L as prerequisites plus CHEM 106 and CHEM 106L as an additional prerequisite/corequisite, all of which promote student comprehension and understanding of biodiversity, ecology and survey of life relating

structure to function in the context of evolution, which reinforces their prior knowledge of molecular-cellular biology and genetics.

VI. Course Outline

- 1.0 Biodiversity and Planet Earth
 - 1.1 What is Biodiversity?
 - 1.2 Importance of Biodiversity
 - 1.3 Measures of Biodiversity
 - 1.4 Ecogeographic Trends in Biodiversity
 - 1.5 Climate and Oceanic Circulation
- 2.0 Diverse Environments of the Biosphere
 - 2.1 Terrestrial Biomes
 - a. Tropical Forests
 - b. Savanna
 - c. Desert
 - d. Chaparral
 - e. Temperate Grasslands
 - f. Temperate Forests
 - g. Tiaga
 - h. Tundra
 - 2.2 Aquatic Biomes
 - a. Freshwater Communities
 - b. Marine Communities
- 3.0 Early Earth and the Origin of Life
 - 3.1 Formation of Earth
 - 3.2 Antiquity of Life
 - 3.3 Origin of Life
 - 3.4 Kingdoms of Life
- 4.0 Prokaryotes and the Origins of Metabolic Diversity
 - 4.1 Prokaryotic Form and Function
 - 4.2 The Diversity of Prokaryotes
 - 4.3 Importance of Prokaryotes
 - 4.4 The Origins of Metabolic Diversity
- 5.0 Protists and the Origin of Eukaryotes
 - 5.1 Characteristics of Protists
 - 5.2 Boundaries of Kingdom Protista
 - 5.3 Protozoa
 - 5.4 Algal Protists
 - 5.5 Protists Resembling Fungi
 - 5.6 Origin of Eukaryotes
 - 5.7 Origins of Multicellularity
- 6.0 Plants and the Colonization of Land
 - 6.1 Introduction to the Plant Kingdom
 - 6.2 The Move onto Land
 - 6.3 Seedless Vascular plants
 - 6.4 Terrestrial Adaptations of Seed Plants
 - 6.5 Gymnosperms
 - 6.6 Angiosperms
- 7.0 Fungi
 - 7.1 Characteristics of Fungi

- 7.2 Diversity of Fungi
- 7.3 Ecology of Fungi
- 7.4 Evolution of Fungi
- 8.0 Invertebrates and the Origin of Animal Diversity
 - 8.1 Characteristics of Metazoa
 - 8.2 Animal Phylogeny
 - 8.3 Parazoa
 - 8.4 Radiata
 - 8.5 Acoelomata
 - 8.6 Pseudocoelomata
 - 8.7 Prostostomata
 - 8.8 Lophophorata
 - 8.9 Deuterostomata
 - 8.10 Origins of Animal Diversity
- 9.0 The Vertebrate Genealogy
 - 9.1 Phylum Chordata
 - 9.2 Origin of Vertebrates
 - 9.3 Vertebrate Characteristics
 - 9.4 Class Agnatha
 - 9.5 Class Placodermi
 - 9.6 Class Chondrichthyes
 - 9.7 Class Osteichthyes
 - 9.8 Class Amphibia
 - 9.9 Class Reptilia
 - 9.10 Class Aves
 - 9.11 Class Mammalia
- 10.0 Population Ecology
 - 10.1 Demography
 - 10.2 Logistic Model of Growth
 - 10.3 Regulation of Populations
 - 10.4 Evolution of Life Histories
- 11.0 Community Ecology
 - 11.1 Communities
 - 11.2 Population interaction
 - 11.3 Community structure
 - 11.4 Succession
 - 11.5 Biogeography and Diversity I
- 12.0 Ecosystems
 - 12.1 Trophic levels and food webs
 - 12.2 Energy flow
 - 12.3 Chemical cycling
 - 12.4 Human influences on ecosystems
- 13.0 Descent with Modification
 - 13.1 Concepts of Darwinism
 - 13.2 The Modern Synthesis
 - 13.3 Evidence for Evolution

VII. Instructional Goals and Student Outcomes:

A. The instructor will:

Present the concepts fundamental to the study of biodiversity, ecology, and survey of life, relating structure to function in the context of evolution.

B. Student Outcomes:

Students will be able to:	Assessment Method
Apply the scientific method through the formulation of hypotheses, proposing of testable predictions, and then testing to reach supportable conclusions about biological processes and systems	Written exams, homework Write scientific papers
Confirm an understanding of the fundamentals of biodiversity, ecology, survey of life, relating structure to function in the context of evolution	Written exams, homework Lab book
Provide an understanding of the major discoveries and advances in biology that have impacted thought and technology throughout history	Written exams, homework
Identify ways in which biology has advanced the understanding of important evolutionary processes	Written exams, homework
Work with the tools and in the settings used to understand biodiversity, ecology, survey of life, relating structure to function in the context of evolution	Laboratory practical exams, Lab book
Use instrumentation employed by biologists in a lab research setting; make critical observations on the biodiversity, ecology, survey of life, relating structure to their functions in biological systems; and accurately record and analyze their data/observations.	Laboratory assignments, presentations, practical exams, poster

VIII. Suggested Text(s):

Campbell, N.A., J.B.Reese, L.A.Urry, M.L.Cain, S.A.Wasserman, P.V.Minorsky & R.B.Jackson; 2008. Biology. 8th Ed. Benjamin Cummings. California.

IX. Bibliography:

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