

Purpose: It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.

Course Title – General Biology II

Course Prefix and Number – BIOL 1407

Department - Biology

Division –Math & Science

Course Type: (check one)

- Academic General Education Course (from ACGM – but not in WCJC Core)
 Academic WCJC Core Course
 WECM course (This course is a Special Topics or Unique Needs Course: Y or N)

Semester Credit Hours # : Lecture Hours # : Lab/Other Hours # 4:3:2

Equated Pay Hours for Course – 4.2

Course Catalog Description – The diversity and classification of life will be studied, including animals, plants, protists, fungi, and prokaryotes. Special emphasis will be given to anatomy, physiology, ecology, and evolution of plants and animals. Laboratory activities will reinforce these concepts.

List Lab/ Other Hours
Lab Hours 2
Clinical Hours
Practicum Hours
Other (list)

Prerequisites/Co-requisites - BIOL 1406 or a semester of college chemistry with a grade of “C” or better.

Prepared by Jennifer Jeffery

Date 8/5/13

Reviewed by Department Head Kim Raun

Date 8/6/13

Accuracy Verified by Division Chair Kevin Dees

Date 8/6/13

Approved by Dean or Vice President of Instruction *ggghunt*

Date 8-6-13



I. Topical Outline – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non lecture instruction):

Lecture Outline

- I. Evolution as a Unifying Concept
 - a. History of evolutionary thought
 - b. Darwinism
 - c. Descent with modification – examples to compare /contrast artificial/natural selection
 - d. Evidence of Evolution
 - e. Classification of organisms reflecting evolution
 - f. Speciation as a process
 - g. Speciation related to biodiversity
- II. Structure and Function of Organisms
 - a. Prokaryotes
 - i. Structure and defining characteristics
 - ii. Overview of classification
 - iii. Examples and importance of significant prokaryotes
 - b. Protista
 - i. Structure and defining characteristics
 - ii. Overview of classification (including three informal groups)
 - iii. Examples and importance of significant protists
 - c. Kingdom Fungi
 - i. Structure and defining characteristics
 - ii. Overview of classification –examples and importance of significant fungi to illustrate phyla and life cycles in the following phyla:
 1. Zygomycota
 2. Ascomycota
 3. Basidiomycota
 - iii. Impact of fungi on ecosystems and humans
 - d. Kingdom Plantae
 - i. Defining characteristics of plant kingdom
 - ii. Overview of classification –examples to illustrate key characteristics, evolutionary lineage, diversity, life cycles and importance of the following phyla:
 1. Anthocerophyta,
 2. Hepatophyta
 3. Bryophyta
 4. Pterophyta
 5. Lycophyta
 6. Cycadophyta
 7. Ginkgophyta
 8. Gnetophyta
 9. Coniferophyta
 10. Anthophyta
 - iii. Dominance of angiosperms
 1. angiosperm diversity
 2. pollination and life cycle
 3. angiosperm organization, development and growth
 - e. Kingdom Animalia
 - i. Defining characteristics
 - ii. Overview of classification to class taxon where applicable -examples to illustrate key characteristics, evolutionary lineage, diversity, ecology, increasing biological complexity and importance of the following phyla:

1. Porifera
 2. Cnidaria
 3. Platyhelminthes
 4. Nematoda
 5. Annelida
 6. Mollusca
 7. Arthropoda
 8. Echinodermata
 9. Chordata
 - iii. Emphasis on craniates
 1. evolution of craniates
 2. survey of craniate groups
 - iv. Animal Structure and Function
 1. form=function
 2. interaction with environment
 3. Introduction to animal tissue types
 4. Introduction to animal organ systems
 5. Animal bioenergetics
- III. Ecology
- a. Community Ecology
 - i. Community defined
 - ii. Interactions among community components
 - iii. Community composition and appreciation for biodiversity
 - iv. Community disturbances
 - b. Ecosystems
 - i. Energy flow through trophic levels
 - ii. Energy budgets
 - iii. Energy efficiency and productivity
 - iv. Nutrient cycling
 - v. Human impacts

Lab Outline:

1. Orientation; Lab Safety & Taxonomy review
2. Protists
3. Fungi
4. Bryophytes and Seedless Vascular Plants
5. Seed Plants
6. Angiosperm Anatomy
7. Lab Practical #1 Exam
8. K. Animalia: Sponges & Cnidaria
9. Platyhelminthes, Nematodes & Mollusks
10. Annelids & Arthropods
11. Echinoderms & Chordates
12. Craniates I
13. Craniates II
14. Lab Practical #2 Exam

II. Course Learning Outcomes

Learning Outcomes	Methods of Assessment
<p>Upon successful completion of this course, students will:</p> <ol style="list-style-type: none"> Describe modern evolutionary synthesis, natural selection, population genetics, micro and macroevolution, and speciation. Describe phylogenetic relationships and classification schemes. Identify the major phyla of life with an emphasis on plants and animals, including the basis for classification, structural and physiological adaptations, evolutionary history, and ecological significance. Describe basic animal physiology and homeostasis as maintained by organ systems. Compare different sexual and asexual life cycles noting their adaptive advantages. Illustrate the relationship between major geologic change, extinctions, and evolutionary trends. Apply scientific reasoning to investigate questions, and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory. Communicate effectively the results of scientific investigations. 	<ol style="list-style-type: none"> lecture, exam questions and post-test exam questions, short essay lecture, exam questions and post-test exam questions, short essay Exam, lab report, essay, presentation, discussion (online or in-class) Exam, lab report, essay, presentation, discussion (online or in-class) Exam, lab report, essay, presentation, discussion (online or in-class) Exam, lab report, essay, presentation, discussion (online or in-class) Lab report*, graph/table/chart, presentation, project, group activity Lab report*, graph/table/chart, presentation, project, group activity Lab report*, graph/table/chart, presentation, project, group activity

III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.

Text: Reece, et. al. *Campbell Biology*. Pearson. Current edition

Lab manual: Wharton County Junior College Department of Biology. *Lab Exercises: General Biology*. XanEdu. Current edition

IV. Suggested Course Maximum – 36 lecture; 24 lab

V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.

Laboratory classroom required

Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course

Lecture Average:	<u>55%</u>	Grade Assignments (%):
Exam average (3-4 exams)	30-55%	A 100-90
Other (homework, quizzes, projects, etc.)	0-25%	B 89-80
Laboratory Average	<u>25%</u>	C 79-70
Final Exam (includes at least 50% comprehensive material)	<u>20%</u>	D 69-60
	Total 100%	F Below 60
Lab grade based on:		
Quiz Average (best 6 of 9 weekly quizzes) - 50%		
Lab Practical #1 Exam - 25%		
Lab Practical #2 Exam - 25%		

VII. Curriculum Checklist

- **Academic General Education Course** (from ACGM – but not in WCJC Core)

No additional documentation needed

- **Academic WCJC Core Course**

Attach the Core Curriculum Review Forms

- Critical Thinking
- Communication
- Empirical & Quantitative Skills
- Teamwork
- Social Responsibility
- Personal Responsibility

- **WECM Courses**

Attach the following:

- Program SCANS Matrix
- Course SCANS Competencies Checklist



**Wharton County
Junior College**

Core Curriculum Review Form

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: _____

Core Objective: **Critical Thinking Skills**—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information

Student Learning Outcome supporting core objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
<input type="checkbox"/> Existing <input type="checkbox"/> Revised <input type="checkbox"/> New <input type="checkbox"/> State Mandated			
<input type="checkbox"/> Existing <input type="checkbox"/> Revised <input type="checkbox"/> New <input type="checkbox"/> State Mandated			
<input type="checkbox"/> Existing <input type="checkbox"/> Revised <input type="checkbox"/> New <input type="checkbox"/> State Mandated			

Department Head: _____

Date: _____



**Wharton County
Junior College**

Core Curriculum Review Form

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: _____

Core Objective: **Communication Skills**—to include effective development, interpretation and expression of ideas through written, oral and visual communication

Student Learning Outcome supporting core objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
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Date: _____



**Wharton County
Junior College**

Core Curriculum Review Form

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: _____

Core Objective: **Empirical and Quantitative Skills**—to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Student Learning Outcome supporting core objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
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Department Head: _____

Date: _____



Core Curriculum Review Form

Foundational Component Area: **Life & Physical Sciences**

Course Prefix & Suffix: _____

Core Objective: **Teamwork**—to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Student Learning Outcome supporting core objective:

For each core objective, there must be at least two different methods of assessment.

SLO Status	Student Learning Outcome (SLO)	Learning Activity	Assessment
The SLO is:	Insert SLO (from Administrative Master Syllabi) below	Provide a brief name and description of the sample learning activity:	Provide a brief name and description of the sample quiz, exam, rubric, assignment, etc. for assessing the objective:
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Date: _____