

CALIFORNIA STATE POLYTECHNIC UNIVERSITY, POMONA

ACADEMIC SENATE

GENERAL EDUCATION COMMITTEE

REPORT TO

THE ACADEMIC SENATE

GE-072-156

BIO 1060 – Human Biology (GE Area B2)

General Education Committee

Date: 07/13/2016

Executive Committee
Received and Forwarded

Date: 08/17/2016

Academic Senate

Date: 08/31/2016
First Reading

BACKGROUND:

This is a new course seeking GE status for the semester calendar.

RESOURCES CONSULTED:

Faculty

Department Chairs

Associate Deans

Deans

Office of Academic Programs

DISCUSSION:

The GE Committee reviewed the ECO for this course and found it to satisfy the GE Student Learning Outcomes and other requirements for GE Area B2.

RECOMMENDATION:

The GE Committee recommends approval of GE-072-156, BIO 1060 – Human Biology for GE Area B2.

BIO - 1060 - Human Biology
C. Course - New General Education* Updated

General Catalog Information

Department*	Biological Sciences		
Semester Subject Area*	BIO	Semester Catalog Number*	1060
Quarter Subject Area	None Selected	Quarter Catalog Number	
Course Title*	Human Biology		
Units*	(3)		
C/S Classification*	C-01 (Large Lecture)		

To view C/S Classification Long Description click: <http://www.cpp.edu/~academic-programs/scheduling/Documents/Curriculum%20Guide/Appendix C CS Classification.pdf>

Component*	Lecture
Instruction Mode*	Face-to-Face Web-Assisted
Grading Basis*	Graded Only

Repeat Basis* May be taken only once	
If it may be taken multiple times, limit on number of enrollments	1
Cross Listed Course Subject Area and Catalog Nbr (if offered with another department)	
Dual Listed Course Subject Area and Catalog number (If offered as lower/upper division or ugrd/grad)	
Choose appropriate type (s) of course(s)*	<input type="checkbox"/> Major Course <input type="checkbox"/> Service Course <input checked="" type="checkbox"/> GE Course <input type="checkbox"/> None of the above
General Education Area / Subarea*	B2

To view the General Education SubArea definitions, click <http://www.cpp.edu/~academic-programs/scheduling/Documents/Ch.3-GeneralEducationProposals.pdf>.

I. Catalog Description

Catalog Description	<p>An introductory course emphasizing the core concepts of biology using examples and case studies that are highly relevant to humans. Topics include the practice of science, human anatomy and physiology, human genetics, human disorders, and human evolution and ecology. Current biological issues, such as cloning, stem cells, genetically modified organisms, climate change, and conservation biology, are also explored.</p>
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II. Required Coursework and Background

Prerequisite(s)	Pre-requisites: None
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Co-requisites: None

Corequisite(s)

**Pre or Corequisite
(s)**

Concurrent

III. Expected Outcomes

**List the
knowledge, skills,
or abilities which
students should
possess upon**

On successful completion of this course, students will be able to describe, identify, and/or explain:

completing the course.*

- How the practice of science is utilized by biologists to study humans at all levels of biological organization (molecular, cellular, tissue, organ, organ system, and organismal).
- How humans maintain homeostasis, and how diseases and disorders alter homeostatic balance.
- How humans acquire, process, and utilize energy and nutrients.
- How humans reproduce, grow, and develop.
- The evolution of humans and the relationships of humans to other forms of life.
- The interactions among humans, other forms of life, and the physical environment.
- The interdependency of science, technology, and society (biotechnological considerations, the effects of human population growth on the planet, etc.).

If this is a course for the major, describe how these outcomes relate to the mission, goals and objectives of the major program.

Explain how the course meets the description of the GE SubArea(s). Please select appropriate outcomes according to the GE Area/SLO mapping.

Human biology uses our own species as the focal point for the study of life. By inspiring, motivating, and encouraging student's inherent interest in and natural curiosity about themselves, the course will explore the unifying principles of life, as well as the diversity of life, from a human perspective.

Describe how these outcomes relate to the associated GE Learning Outcomes listed below.*

- - la) *Write effectively for various audiences.*

Students will complete multiple written assignments during the course, each of which will be evaluated and critiqued by the instructor, as well as peer-reviewed by fellow classmates, in order to provide feedback prior to the subsequent written assignments.

- - ld) *Construct arguments based on sound evidence and reasoning to support an opinion or conclusion.*

Student assignments will involve a summary of information obtained from outside sources (e.g. primary journal articles, popular journal articles, textbooks, websites, news media), as well as a critical analysis of the information and the resulting conclusions. Furthermore, class discussions pertaining to potentially contentious current biological issues will lead to additional student research topics and written assignments.

- - le) *Apply and communicate quantitative arguments using equations and graphical representations of data.*

The production and interpretation of simple descriptive statistics, inferential statistics, and graphs will enable students to read, understand, and evaluate scientific claims, as well as to distinguish scientific evidence from anecdotal evidence. Statistical analysis will be introduced during lecture and discussed during literature reviews and critiques.

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IIa) *Apply scientific methods and models to draw quantitative and qualitative conclusions about the physical and natural world.*

Students will be introduced to all aspects of the scientific method (observations, hypotheses, predictions, inductive reasoning, deductive reasoning, experiments, controls, theories) during lecture. The application of scientific methods will then be discussed during literature reviews and critiques.

General Education Outcomes*

Ia. Write effectively for various audiences

Id. Construct arguments based on sound evidence and reasoning to support an opinion or conclusion.

Ie. Apply and communicate quantitative arguments using equations and graphical representations of data.

IIa. Apply scientific methods and models to draw quantitative and qualitative conclusions about the physical and natural world.

To view the mapping, click <https://www.cpp.edu/~academic-programs/Documents/GE%20SLO%20Mapping.pdf>

IV. Instructional Materials

Provide bibliography that includes texts that may be used as the primary source for instruction, and other appropriate reference materials to be used in instruction. The reference list should be current, arranged alphabetically by author and the materials should be listed in accepted bibliographic form.

Instructional Materials*

Texts may vary over time. Examples of possible texts include:

- Mader and Windelspecht. 2014. *Inquiry into Life*. McGraw-Hill. New York, NY.
- Goodenough and McGuire. 2012. *Biology of Humans: Concepts, Applications, and Issues*. Pearson Benjamin Cummings. San Francisco, CA.
- Johnson. 2010. *Human Biology: Concepts and Current Issues*. Pearson Benjamin Cummings. San Francisco, CA.
- Starr and McMillan. 2003. *Human Biology*. Brooks/Cole—Thomson Learning. Pacific Grove, CA.

Lecture notes will also be made available on Blackboard by the instructor.

Faculty are encouraged to make all materials accessible. Indicate with an asterisk those items that have had accessibility (ATI/Section 508) reviewed. For more information, <http://www.cpp.edu/~accessibility>

V. Minimum Student Material

List any materials, supplies, equipment, etc., which students must provide, such as notebooks, computers, internet access, special clothing or uniforms, safety equipment, lockers, sports equipment, etc. Note that materials that require the assessment of a fee may not be included unless the fee has been approved according to University procedures.

Minimum Student Material*

Computer	Microsoft Word, Excel, PowerPoint

Internet	Email
Flash Drive	Printer
iClicker	Calculator
Writing Instruments	

VI. Minimum College Facilities

List the university facilities/equipment that will be required in order to offer this class, such as gymnastic equipment, special classroom, technological equipment, laboratories, etc.

Minimum College Facilities*

External Support

Library Services	Information Technology (IT) Services
COS Instructional Support Center	
Classroom Management System (Blackboard)	
Photocopier	Scanner

Physical Space & Major Equipment

Lecture room with seating for 90+ students	Smart classroom (lectern, computer, projector, screen)
DVD player / speakers	Whiteboard / dry erase markers
iClicker receiver	Adjustable lighting

VII. Course Outline

Describe specifically what will be included in the course content. This should not be a repetition of the course description but an expansion that provides information on specific material to be included in the class, e.g. lecture topics, skills to be taught, etc. This should not be a week-by-week guide unless all instructors are expected to follow that schedule.

Course Outline*

1. Introduction to human biology

- The practice of science
- Simple statistics (descriptive, inferential, graphing)

2. Cell biology

- Principles of chemistry
- Macromolecules
- Membranes and organelles

- Energy and cellular respiration
- Cell reproduction
- DNA and protein synthesis
- Cloning, stem cells, and biotechnology

3. Tissues, organs, and organ systems

- Histology
- Integumentary system
- Digestive system and nutrition
- Respiratory system
- Cardiovascular system
- Immune system
- Urinary system
- Nervous system and senses
- Muscular system
- Skeletal system
- Endocrine system
- Reproductive system

4. Homeostasis and human disorders

- Negative and positive feedback
- How the body's cells, tissues, organs, and organ systems maintain homeostasis
- How homeostatic balance is disrupted
- Cancer
- Cardiovascular disease
- AIDS
- How drugs affect the brain
- Diabetes
- Sexually transmitted diseases
- Additional disorders chosen by students

5. Genetics and development

- Principles of genetics
- Human genetics
- Principles of development
- Human development

6. Evolution and ecology

- Principles of evolution
- Overview of biodiversity
- Human evolution
- Principles of ecology
- Photosynthesis
- Human ecology (climate change, conservation biology, and other human impacts on the environment)

VIII. Instructional Methods

Describe the type(s) of method(s) that are required or recommended for the instruction of this course (lectures, demonstrations, etc.). Include any method that is essential to the course, such as the use of particular tools or software.

Instructional Methods*

Lecture	Discussion
Problem solving	Case studies
Individual projects	Evaluation and critique
Small group activities	Assigned readings
Online tutorials	Educational videos

IX. Evaluation of Outcomes

Describe the methods to be used to evaluate students' learning, i.e. written exams, term papers,

- Exams.

**projects,
participation,
quizzes,
attendance, etc.***

Students will demonstrate the knowledge gained regarding each learning objective during in-class exams following the completion of each major course topic. Exams will consist of multiple choice questions and a short essay (approximately half a page). The final exam may be cumulative or non-cumulative at the discretion of the instructor.

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Quizzes.

Students will demonstrate the knowledge gained regarding each learning objective during in-class and online quizzes. Online quizzes will consist of multiple choice questions, while in-class quizzes may consist of multiple choice questions or a short essay (approximately half a page). Quizzes will be given on a regular basis to provide feedback regarding student progress prior to the exams.

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Written assignments.

Multiple written assignments will be completed during the course. Each assignment will address one specific disease or disorder, or one specific potentially contentious current biological issue, which will provide students with in-depth coverage of these learning objectives.

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Oral discussions.

Class discussions will be used to address specific learning objectives. For example, following submission of the written assignments on diseases and disorders, the class will engage in discussion so that all students hear about all of the diseases and disorders covered. Following the instructional videos on human evolution and human ecology, class discussions will enable students to demonstrate the knowledge gained, as well as provide feedback regarding student progress, regarding these learning objectives.

- *Participation.*

Class participation (e.g. using iClickers) will be used to assess all learning outcomes. Participation points will be awarded for correctly answering questions placed throughout the lectures, and while feedback from the participation responses may stimulate class discussion, participation points are intended more to 1) summarize and review material recently presented in lecture, 2) preview typical exam-style questions, and 3) reward students for attendance.

Describe the meaningful writing assignments to be included.*

Multiple times during the course, students will use journals, texts, and online resources to research a human disorder. All students will research different disorders (either chosen by the students or assigned by the instructor). Students will write a paper (approximately one page) detailing the causes, symptoms, diagnoses, treatments, prevention methods, effects on the body, and other biological aspects of interest pertaining to the disorder.

In addition, in-class discussions pertaining to potentially contentious contemporary biological issues (e.g. stem cells, cloning, genetic screening, genetically modified organisms, DNA fingerprinting, vaccination, fad diets, birth control methods, human evolution, climate change, the ozone hole, endangered species) will serve as starting points for additional research topics and written papers (again approximately one page).

Papers will be submitted to Blackboard, and in addition to being graded and critiqued by the instructor, all students will have access to their classmates' (anonymous, pre-graded) papers. In this way, students will learn about each of the disorders, as well as gain insight into their fellow students' thoughts and opinions about the current biological issues. A general rubric will be provided prior to the first written assignment, which the instructor will use to grade and critique each assignment. The rubric will also be used by students to peer-review their classmates' assignments. Both of these forms of evaluation will provide feedback to the students, better preparing them to write their subsequent papers.

Discuss how these methods may be used to address the course and program outcomes, as appropriate. Include or attach a matrix to align the evaluation methods to the outcomes.*

Student Learning Outcomes	Methods of Assessment				
	Exams	Quizzes	Written Assignments	Oral Discussions	Participation
How the practice of science is utilized by biologists to study humans at all levels of biological organization (molecular, cellular, tissue, organ, organ system, and organismal).	X	X	X	X	X
How humans maintain homeostasis, and how diseases and disorders alter homeostatic balance.	X	X	X	X	X
How humans acquire, process,	X	X			X

and utilize energy and nutrients.					
How humans reproduce, grow, and develop.	X	X			X
The evolution of humans and the relationships of humans to other forms of life.	X	X		X	X
The interactions among humans, other forms of life, and the physical environment.	X	X		X	X
The interdependency of science, technology, and society (biotechnological considerations, the effects of human population growth on the planet, etc.).	X	X	X	X	X

If this is a general education course, discuss how these methods may be used to address the associated GE Learning Outcomes listed below. Include or attach a matrix to align the evaluation

GE Learning Outcomes	Methods of Assessment				
	Exams	Quizzes	Written Assignments	Oral Discussions	Participation

methods to the outcomes.*					
Ia) Write effectively for various audiences.	X	X	X		
Id) Construct arguments based on sound evidence and reasoning to support an opinion or conclusion.			X	X	X
Ie) Apply and communicate quantitative arguments using equations and graphical representations of data.	X	X	X	X	X
IIa) Apply scientific methods and models to draw quantitative and qualitative conclusions about the physical and natural world.	X	X	X	X	X

X. This OPTIONAL Section is for describing Course/Department/College specific requirements.