APPLICANT: G. Witteman

E-MAIL: witteman@hawaii.edu

COURSE ALPHA and NUMBER:  ZOOLOGY 141, PHYSIOLOGY 141

COURSE TITLE: Human Anatomy and Physiology 1

ESTIMATED NUMBER OF SECTIONS:
Fall: 2
Spring: 1

APPLICATION IS FOR:
☐ New Course  ☐ Modified Course  ☒ Existing Course  ☐ Re-designation
☐ Certification  ☒ Re-Certification. Date of last certification:

DIVERSIFICATION AREA DESIGNATION SOUGHT:
☐ DA (Arts)  ☐ DP (Physical Sciences)
☒ DB (Biological Sciences)  ☐ DS (Social Sciences)
☐ DH (Humanities)  ☐ DY (Laboratory)
☐ DL (Literature and Language)

What percentage of the CONTENT of this course focuses on this diversification area?  100

What percentage of CLASS MEETINGS focuses on this diversification area?  100
1. **Hallmarks and SLOs.** Please explain how course-specific SLOs align with the diversification area’s hallmarks.

The alignment of Anatomy and Physiology I (A&PI) student learning outcomes and course competencies (letters "a" through "y" below) with diversification hallmarks (DB1-3) is shown here. Every course competency, objective or intended learning outcome in the list below fulfills one or more of the following biological diversification hallmarks.

<table>
<thead>
<tr>
<th>Objective/competency/outcome: a through z (all)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB.1 uses the terminology of the biological sciences.</td>
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<tr>
<td>DB.2 involves knowledge and theories relating to processes in the biological sciences;</td>
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<tr>
<td>DB.3 demonstrates inquiry that is guided by observation/experiment and reasoning/mathematics.</td>
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</tbody>
</table>

Anatomy and Physiology I specific course objectives, competencies, and student learning outcomes (See “ZOOL141 system course outline” and syllabus attached) Upon completion of this course, the student will be able to:

- a. Describe the planes, cavities, and gross anatomy of the human body
- b. Identify by name, the required anatomical structures of the body and the various systems studied in this semester
- c. Discuss the negative and positive feedback process involved in regulating body systems
- d. Relate chemical and biological knowledge to the function of the human body and other living organisms
- e. Determine bond types using the periodic table and tables of electro-negativity
- f. Analyze the structure and function of the cell and its interactions with the environment and the body systems
- g. Explain the gross and cellular physiology of the body systems
- h. Recognize the four major tissue types and the unique contribution of each of these tissues to the organization and function of the human body
- i. Identify components of the integumentary system.
- j. Describe the functions of integumentary structures
- k. Identify components of the skeletal system
- l. Explain the development, growth and repair of skeletal structures
- m. Distinguish the various classes of Articulations
- n. Identify the major skeletal muscles of the body
- o. Describe origins, insertions, and actions of specific muscle groups
- p. Characterize the mechanism of muscle contraction
- q. Explain the regulation of muscle contraction and coordinated movements
| r. Distinguish between aerobic and anaerobic processes in exercise |
| s. Identify the major neural tissues |
| t. Characterize the events of an action potential and Transmembrane potentials |
| u. Describe the organization of the spinal cord and somatic reflexes |
| v. Describe the major brain regions and their functions |
| w. Identify and interpret the major cranial and spinal reflexes |
| x. Calculate and interconvert values for measurements, concentrations, and rates as appropriate |
| y. Analyze and Interpret graphic materials |
| z. Measure various physical and chemical aspects of animal physiology |

--- Note: 100% of the course content meets the three DB hallmarks. ---

2. **Assessment strategies.** Explain assessment strategies you have used (or plan to use) to measure the degree to which students exit the course with the course-specific SLOs. If there are multiple sections of the course taught by different instructors, please discuss how assessment is (or will be) carried out across instructors.

Lecture exams, active participation in class discussions, lecture/lab quizzes and take-home activities are used to assess the degree to which students and the class (as a whole) is able to meet course competencies. This course uses a knowledge survey of general biological principles and course specific topics at the beginning of the semester, and then repeats groups of these questions in lecture exams after presentation of the topics in class. Specific course competencies and learning outcomes are measured and compared with previous semesters, and between current semester sections, to verify consistency in intended student outcomes. Sections and topics have been identified and additional effort and learning opportunities presented for those with consistently low performance.

Topics, coverage, and emphasis within A&P I is defined externally by the NCLEX (nursing licensure tests) and by the common course outline used by multiple U.H. campuses (See "ZOOL141 system course outline" and HonCC syllabus attached). Together these define appropriate number weights and methods of student grading and assessment that are used at HonCC. New and adjunct faculty are given all instructor materials and guidance from the permanent A&P instructor who insures consistency between sections and semesters.

3. **Assessment of assessment.** How have you used (or plan to use) the assessment findings to modify or improve this course? If there are multiple sections of the course taught by different instructors, please discuss how review of assessment results is (or will be) carried out across instructors.

As an instructor of A&P I and II courses for over 14 years (at three universities), I have conducted multiple “assessment – change – improvement” cycles. I presented the efforts from this course design and modification effort at a WASC-senior accreditation conference (2003) to unanimously positive feedback, and was the first anatomy professor at the University of Guam to have 100% of my anatomy students pass the NCLEX board licensure exam on their first attempt. My teaching methods and the course materials should be considered “mature” (in need of little continued modification).

I maintain and update lecture and instructor materials to include medical advances or changes in the industry, and assist new instructors with delivery and methods of improving student outcomes while maintaining necessarily (externally determined) high standards. (G. Witteman)
DIVERSIFICATION BOARD DECISION:

☑ Approved
Re-Certification Due: Spring 2018

☐ Not approved
If not approved, reasons for disapproval:

Diversification Board Chair Signature: [Signature]
Date: 3/8/18
# ZOOLOGY/PHYSIOLOGY 141/141L:
HUMAN ANATOMY AND PHYSIOLOGY I

<table>
<thead>
<tr>
<th>Instructors: Dr. G. Witteeman</th>
<th>Office: 5-101B Phone: 847-9847</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Times: W. Lecture 1130-1245, Lab Th 1000-1250</td>
<td>web: links to material through U.H. laulima</td>
</tr>
<tr>
<td>Classroom: 5-105</td>
<td>E-mail: <a href="mailto:witteeman@hawaii.edu">witteeman@hawaii.edu</a></td>
</tr>
<tr>
<td>Student study sessions/tutoring: Bld. 5-105, M – Th: , F by aptmnt.</td>
<td></td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION:** This is an introductory Anatomy and Physiology for biology and health science majors. This course is a requirement for the Physical Therapy Assistant and Nursing degree programs at UH Manoa and Kapiolani. The topics covered in the course are: Scientific approaches, life characteristics, and the following organ systems: Integumentary, Skeletal, Muscular, and Nervous. This course consists of complimentary lecture and laboratory sections designed to be taken concurrently at HCC. Because of this, taking lecture or laboratory classes separately is strongly discouraged.

Zoology/Physiology 141/141L is the first semester of the two-semester introductory anatomy and physiology course series for life-science majors. The lecture course fulfills the University of Hawaii Community Colleges’ Natural Science requirement for the A.A. and A.S., degrees and the University of Hawai’i at Manoa, General Education Requirements for Diversification, Natural Sciences, Biological Sciences (141; DB; 3 credits). The laboratory portion of this course sequence (141L) fulfills laboratory diversification requirements (DY; 1 credit).

**Required Text & Materials:**
Human Anatomy and Physiology, Elaine N. Marieb & Katja Hoehn
Flashdrive (4gig or more), internet access

**Additional Learning Resources:**
In addition to the text and your lecture notes, there will be a variety of supplemental materials available through the course website and on the classroom’s workstations. This will include practice quizzes, lecture outlines, concept and keyword lists, images of specimens and lecture summaries.

**Methods of Evaluation:**
As the course material is the same in lecture and lab, you will receive the same letter grade for both. The Lecture is weighted as ¾ of the overall grade (75%) and the lab counts for ¼ (25%) of your grade. Your final grade will be based on the total number of points that you receive out of a possible 400 points. If you are only taking the lecture or lab portions of the class you will be graded accordingly. (As students attempting to take only one of the courses have had poor outcomes, it is **strongly** recommended to take both lecture and lab concurrently at HCC).

For the lecture’s 300 course points there will be 3 lecture exams worth 75 points (225 points total) and 5 lecture quizzes or assignments worth 15 points (75 points total). For the 100 points possible in lab, there will be three lab practical examinations worth 25 points each (75 points total) and 5 lab quizzes or exercises worth 5 points each (25 points total).

Full-credit makeup exams will only be given for documented illness or accident (i.e.: you must have a doctor’s excuse or a copy of an official document such as a police report). If you miss an examination for any other reason you must complete the makeup exam within a week and you will only be able to earn a maximum of 70% of the points. Makeup quizzes for unexcused absences will only be worth 10 points maximum (50%). If you score less than a passing grade or are absent for any quiz, exam, or exercise YOU MUST COMPLETE A MAKEUP QUIZ OR ASSIGNMENT WITH A PASSING GRADE TO RECEIVE A FINAL GRADE FOR THE COURSE. There is no extra credit of any kind.

**WITHDRAWAL** ("W" grade): If you decide to withdraw from the course, the paperwork must be completed by the LAST DAY FOR ALL WITHDRAWALS, which can be found on the HCC academic calendar. I will sign withdrawals only in cases of extreme or unusual circumstances. Grade-related excuses are unacceptable. If you simply disappear without withdrawing, you will receive an F for the course. Withdrawals after the designated time will be allowed by the college only in cases of extreme circumstances and will be administratively reviewed for accuracy and validity. Examples are a certified medical reason or a death in the immediate family.

**INCOMPLETE** ("I" grade): A "Request for Incomplete" form must be presented prior to the last day of instruction. An "I" grade will only be given to students who are achieving passing grades and who are very close to completing the course. In addition, a student must have a very good reason for not being able to complete the work or test on time.
**Online quiz and test option:**
For some of the quizzes you will be given the option of averaging in your online practice tests and your in-class scores for quizzes (details will be given in class).

**Points needed for letter grades:**

- $360-400 = A = 90-100\%$
- $320-359 = B = 80-89\%$
- $280-319 = C = 70-79\%$
- $240-279 = D = 60-69\%$
- $0-239 = F \leq 60\%$

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**Zoology 141/141L Schedule of Lectures, Exams & Readings**

Fall 2012, (Tentative schedule, subject to change)

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Lecture Topics</th>
<th>Reading</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug. 20</td>
<td>Overview, Orientation, Chem. review</td>
<td>Ch. 1, 2</td>
<td>Orientation Measurement &amp; documentation</td>
</tr>
<tr>
<td>2</td>
<td>Aug. 27</td>
<td>Chem. &amp; Cellular processes</td>
<td>Ch. 2, 3</td>
<td>Microscopy</td>
</tr>
<tr>
<td>3</td>
<td>Sep. 3*</td>
<td>Cells, Histology, Quiz 1</td>
<td>Ch. 4</td>
<td>Histology Lab E/Q 1</td>
</tr>
<tr>
<td>4</td>
<td>Sep. 10</td>
<td>Histology, Integumentary</td>
<td>Ch. 5</td>
<td>Skeletal 1 Lab E/Q 2</td>
</tr>
<tr>
<td>5</td>
<td>Sep. 17</td>
<td>Skeletal: Histology, Axial,</td>
<td>Ch. 6, 7</td>
<td>Skeletal 2</td>
</tr>
<tr>
<td>6</td>
<td>Sep. 24</td>
<td>Skeletal: Appendicular, Joints, <strong>Exam-1</strong></td>
<td>Ch. 7, 8</td>
<td>Skeletal Features and Joints</td>
</tr>
<tr>
<td>7</td>
<td>Oct. 1</td>
<td>Muscular: Histology</td>
<td>Ch. 9</td>
<td>Lab Practical 1</td>
</tr>
<tr>
<td>8</td>
<td>Oct. 8</td>
<td>Muscular: Head/Neck,</td>
<td>Ch. 10</td>
<td>Muscular 1</td>
</tr>
<tr>
<td>9</td>
<td>Oct. 15</td>
<td>Muscular: Torso, Appendages</td>
<td>Ch. 10, 11</td>
<td>Muscular 2 Lab E/Q 3</td>
</tr>
<tr>
<td>10</td>
<td>Oct. 22</td>
<td><strong>Exam-2</strong>, Nervous: Histology, Overview</td>
<td>Ch. 11</td>
<td>Muscular 3</td>
</tr>
<tr>
<td>11</td>
<td>Oct. 29</td>
<td>CNS: Brain (&amp; Cranial Nerves/PNS)</td>
<td>Ch. 12</td>
<td>Lab Practical 2</td>
</tr>
<tr>
<td>12</td>
<td>Nov. 5</td>
<td>CNS: Spinal Quiz 4</td>
<td>Ch. 12, 13</td>
<td>Brain, CNS</td>
</tr>
<tr>
<td>13</td>
<td>Nov. 12*</td>
<td>PNS: Pathways, Sensory &amp; Motor Func.</td>
<td>Ch. 13</td>
<td>CNS 2, PNS, Lab E/Q 4</td>
</tr>
<tr>
<td>14</td>
<td>Nov 19</td>
<td>ANS, Quiz 5</td>
<td>Ch. 14</td>
<td>PNS</td>
</tr>
<tr>
<td>15</td>
<td>Nov. 26</td>
<td>Special Senses</td>
<td>Ch. 15</td>
<td>Special Senses</td>
</tr>
<tr>
<td>16</td>
<td>Dec. 3</td>
<td>Special Senses 2</td>
<td>Ch. 15</td>
<td>Lab Practical 3</td>
</tr>
</tbody>
</table>

**Exam-3 (Final Exam-Finals week)**

Readings for the week are to be completed BEFORE CLASS.

* Monday Holidays (no class).
Lecture Student Learning Outcomes
Upon successful completion of PHYL/ZOOL 141, the student should be able to:

a. Describe the planes, cavities, and gross anatomy of the human body
b. Identify by name, the required anatomical structures of the body and the various systems studied in this semester
c. Discuss the negative and positive feedback process involved in regulating body systems
d. Relate chemical and biological knowledge to the function of the human body and other living organisms
e. Determine bond types using the periodic table and tables of electro-negativity
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u. Describe the organization of the spinal cord and somatic reflexes
v. Describe the major brain regions and their functions
w. Identify and interpret the major cranial and spinal reflexes
x. Calculate and interconvert values for measurements, concentrations, and rates as appropriate
y. Analyze and Interpret graphic materials
z. Measure various physical and chemical aspects of animal physiology

Laboratory Student Learning Outcomes
Upon successful completion of PHYL/ZOOL 141L, the student should be able to:

1) Use the scientific method to design and conduct a clinical research study.
2) Describe the anatomy of the integumentary, skeletal, muscular, and nervous systems from prepared slides, models, and real and virtual animal dissections.
3) Use basic laboratory and medical equipment to evaluate functions (physiology) of the above body systems.
4) Use critical thinking to analyze and interpret clinical data.
5) Prepare a written summary of all lab activities that reflects use of the the scientific method