Please attach/submit additional documents as needed to fully complete each section of the form.

I. COURSE INFORMATION

Department: Applied Arts and Sciences
Course Number: BIOH 108

Course Title: Basic Anatomy
Lab Status: With Lab X Without Lab
Type of Request: New One-time Only Renew * Change X Remove

Rationale: Basic human anatomy promotes foundational understanding of the organization and workings of the human body, and so should have broad appeal to students. Human anatomy also can serve as an engaging platform from which to engage students to better understand general scientific principles—course topics are interpreted in the context of investigation using the scientific method to realize the specific relationships between forms and functions. Knowledge of anatomical principles is then applied in the context of health & disease, development & growth, nutrition & exercise.

*If course has not changed since the last review and is taught by the same tenure-track faculty member, you may skip sections III-V.

JUSTIFICATION FOR COURSE LEVEL

Normally, general education courses will not carry pre-requisites, will carry at least 3 credits, and will be numbered at the 100-200 level. If the course has more than one pre-requisite, carries fewer than three credits, or is upper division (numbered at the 300 level or above), provide rationale for exception(s).

This course is taught at the 100 level, with no prerequisites. It incorporates a lab for a total of 4 credits. Basic Anatomy provides a broad overview of the subject as well as instruction in basic science principles including scientific method, evolution, and processes that sustain life.

ADDITIONAL INFORMATION (FOR OCHE DATABASE):
In which MUS Core Category, does this course fit? Natural Science
Does the course include content regarding cultural heritage of American Indians? No

II. ENDORSEMENT / APPROVALS

* Instructor: Colin Henderson
  Phone / Email: 243-7834 / colin.henderson@umontana.edu
  Program Chair: Josef Crepeau
  Dean: Shannon O'Brien
  Signature
  Date 9/8/16
  Signature
  Date 10/8/16
  Signature
  Date 10/9/16

*Form must be completed by the instructor who will be teaching the course. If the instructor of the course changes before the next review, the new instructor must be provided with a copy of the form prior to teaching the course.

III. DESCRIPTION AND PURPOSE
General Education courses must be introductory and foundational within the offering department or within the General Education Group. They must emphasize breadth, context, and connectedness; and relate course content to students' future lives: See Preamble.

A one semester course of scientific study focusing on knowing the: scientific principles of anatomy, functional anatomy of the body’s architecture and systems, definitions and terms in course textbooks, derivation/pronunciation and spelling of the language of anatomy. Course topics are interpreted in the context of: an investigation (using Scientific Method) to realize the specific relationships between forms and functions. Course topics and knowledge of anatomical principles are then applied in the context of: health & disease, development & growth, nutrition & exercise; all connected to our daily need to understand how to take care of ourselves, and work helping others via healthcare professions.

IV. CRITERIA

BRIEFLY EXPLAIN HOW THIS COURSE MEETS THE CRITERIA FOR THE GROUP.

1. Courses explore a discipline in the natural sciences and demonstrate how the scientific method is used within the discipline to draw scientific conclusions. Students assigned to explore genetics and learn about evolution by referencing a published research paper on genetics; and then demonstrate how the scientific method was used in drawing a valid scientific conclusion by submitting an original, written summary report for grading.

2. Courses address the concept of analytic uncertainty and the rigorous process required to take an idea to a hypothesis and then to a validated scientific theory; Students are assigned to find a genetic study that supports the theory of evolution, includes emphasis on: concepts of analytic uncertainty, and the rigorous processes required to then validate a 'hypothesis' as a 'scientific theory', also demonstrated in their written summary report.

3. Lab courses engage students in inquiry-based learning activities where they formulate a hypothesis, design an experiment to test the hypothesis, and collect, interpret, and present the data to support their conclusions. The lab activities

V. STUDENT LEARNING GOALS

BRIEFLY EXPLAIN HOW THIS COURSE WILL MEET THE APPLICABLE LEARNING GOALS.

1. Understand the general principles associated with the discipline(s) studied.

In addition to the usual Learning Goals associated with the general principles of Basic Anatomy, this course's competencies also include the student demonstrating an understanding of the 5 Basic principles of Scientific Method: 1. Identification of the problem and observation of the processes. 2. Making a good Hypothesis that can be tested. 3. Controls groups established for comparison. 4. Independent and Dependent Variables for the experiment. 5. How the experiment reaches a conclusion. This is demonstrated by the student's written answers to assessment questions and/or submitting self-authored written reports.

2. Understand the methodology and activities scientists use to gather, validate and interpret data related to natural process.

Students understand the methodology and activities scientists use to gather, validate and interpret data related to natural processes by studying a published research paper covering an evolutionary topic related to genetics. Students submit a written paper focusing on: Methodology, Data Collection, Data Interpretation, Margin of Error and Significance of Conclusions; as taught by the teacher in class, demonstrated in course textbook, and written assignment.
3. Detect patterns, draw conclusions, develop conjectures and hypotheses, and test them by appropriate means and experiments.

Students detect patterns, draw conclusions, study the development of conjecture and hypothesis, and testing of hypotheses with appropriate experiments for validation within the specific context of studying already published research papers and how scientist conducted themselves toward understand these topics.

4. Understand how scientific laws and theories are verified by quantitative measurement, scientific observation, and logical/critical reasoning.

Students understand, by observing scientists in the published research: how Scientific Laws and Theories are verified, and how hypothesis are refined and eventually proven by accurately conducting experiments that could potentially result in disproving the initial hypothesis.

5. Understand the means by which analytic uncertainty is quantified and expressed in the natural sciences.

Students understand how the published research of scientists' experiments demonstrates the means by which uncertainty is quantified and expressed in the natural sciences by use of: Statistics, Margin of Error, correctly and accurately defining the experiments' criteria and parameters for proving and disproving the hypothesis.

VI. ASSESSMENT

A. HOW ARE THE LEARNING GOALS FOR THE GENERAL EDUCATION GROUP MEASURED?

Describe how you will determine that students have met each of the General Education Learning Goals. This should include specific examples of assignments, rubrics or test questions that directly measure the General Education learning goals. (See Example)

Please attach or provide a web link to relevant assessment materials.

The above Learning Goals are measured by the Instructor assessing student's written report on their topic of a prior published Genetics Research Paper and/or by written test questions (from material covered by the instructor during class lecture and/or material mentioned in course textbook), and lab, that demonstrates an understanding of:

1. Scientific Method.
2. Identification of the problem
3. Making a good hypothesis that can be tested
4. Conjecture and further refining of initial hypothesis
5. Accurately defining the parameters of the experiment's criteria that proves and disproves the hypothesis
6. Calculating and expressing analytic uncertainty
7. Establishing Methodology and rigorous process for the experiment
8. Identifying Independent and Dependent Variables
9. Conducting the experiment
10. Observing the experiment's processes
11. Collecting experimental data
12. Interpreting experimental data
13. Concluding the experiment

A General Education Assessment Report will be due on a four-year rotating cycle. You will be notified in advance of the due date. This will serve to fulfill the University's accreditation requirements to assess general education and will provide an opportunity to connect with your colleagues across campus and share teaching strategies. Items VI.B- D will be helpful in compiling the report.

B. ACHIEVEMENT TARGETS

[This section is optional. Achievement targets can be reported if they have been established.]
Describe the desirable level of performance for your students, and the percentage of students you expected to achieve this:

1.

2.

3.

C. ASSESSMENT FINDINGS

[This section is optional. Assessment findings can be reported if they are available.]

**What were the results/findings, and what is your interpretation/analysis of the data?** (Please be detailed, using specific numbers/percentages when possible. Qualitative discussion of themes provided in student feedback can also be reported. Do NOT use course grades or overall scores on a test/essay. The most useful data indicates where students’ performance was stronger and where it was weaker. Feel free to attach charts/tables if desired.)
D. ASSESSMENT FEEDBACK

(This section is optional. Assessment feedback can be reported if it is available.)

Given your students’ performance the last time the course was offered, how will you modify the course to enhance learning? You can also address how the course could be improved, and what changes in the course content or pedagogy you plan to make, based upon on the findings. Please include a timeframe for the changes.
Please submit syllabus in a separate file with the completed and signed form to the Faculty Senate Office, UH 221. The learning goals for the Natural Science Group must be included on the syllabus. An electronic copy of the original signed form is acceptable.
MISSOULA COLLEGE COURSE: BIO H-108, Basic Anatomy

SEMESTER: Fall 2016

SEMESTER CREDITS: 3

INSTRUCTOR: Lucas Whitcher, MS EXSC

E-MAIL: luke.whitcher@umontana.edu

OFFICE LOCATION: HB-02

OFFICE HOURS: Thursday 9:00-10:00

COURSE DESCRIPTION: This course provides an introduction to human anatomy. Included are fundamental overviews of: biology and human anatomy as they pertain to the human body. This course serves as a primer for students who are seeking to develop a foundational understanding of these objectives, and give themselves a better chance for success in Anatomy and Physiology I & II (i.e. Bio 201 and Bio 211). Students pursuing degrees or certificates in certain the allied health-related professions also benefit from the knowledge and useful daily skills provided by this course. Weekly: 3 hours of lecture.

COURSE GOALS: Upon completion of the course the successful student will, by written tests, be able to:

- Spell and define associated terminology.
- Understand fundamental sciences and how they integrate into the study of the human body.
- Identify anatomical structures and landmarks on the human body.
- Understand the different bodily systems and their various functions.
- Explain the form/function relationship and how it relates to the human body.

Bio H-108 Basic Anatomy: Objectives and Outcomes

1. Student demonstrates an understanding of the organization of the Human body, including:
   - Levels of Structural Hierarchy
   - Anatomical and Directional Terminology
   - Body Orientation and Planes
   - Bodily Regions
   - Body Cavities
   - Abdominal Regions,

   by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

2. Student demonstrates an understanding of the basic human cell structure, including:
• Visual Identification of the Three Main Parts of the Cell (generic)
• Visual Identification of Organelles
• Basic Functions
• Form Function Relationships
• Cellular Specializations
• Cell Shapes

by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

3. Student demonstrates an understanding of the Basic Tissues of the body, including:
• Four Types of Base Tissues
• Structural and Functional Types
• Visual Identification
• Cells and Matrix
• Membranes

by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

4. Student demonstrates an understanding of the Skeletal System of the body, including:
• Four Types of Bones
• Macro-Anatomy of Long Bone (generic parts)
• Bones of Adult Skeleton by Divisions
• Bones and Joints of the Skull
• Bones and Joints of the Vertebral Column and Thoracic Cage
• Bones and Joints of the Pectoral Girdle and Upper Limb
• Bones and Joints of the Pelvic Girdle and lower Limb

by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

5. Student demonstrates an understanding of the Integumentary System; including:
• Structure of the Skin
• Skin Color
• Appendages of the Skin

by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

6. Student demonstrates an understanding of the Joint Types, and Movements, including:
• Functional Classification of Joints
• Synovial Joints and Identification of Structural Types
• Identification of Structures of Knee Joint
• Identification of Joint Movements

by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

7. Student demonstrates an understanding of the Muscular System of the body, including:
• Identification of Muscle Structures (mysia and fascia)
• Muscle Function (origin & insertion bones/joints, action, roles)
• Muscle Naming Schemes
• Identification of Head and neck Muscles
• Identification of Trunk Muscles
• Identification of Upper Limb Muscles
• Identification of Lower Limb Muscles

by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

8. Student demonstrates an understanding of the Nervous System of the body, including:
• Identification of the Divisions of the Nervous System
• Identification of Spinal Cord Structures
• Identification of Spinal Nerve Structures
• Identification of the Parts of Spinal Reflex Arc
• Identification of Basic Brain Structures

by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

9. Student demonstrates an understanding of the Special Senses of the body, including:
• General Senses
• Identification of Basic Ear Structures (for hearing and balance)
• Identification of Basic Eye Structures

by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

10. Student demonstrates an understanding of the Heart, including:
• Identification of Heart Structure
• Identification of Great Vessels of the Heart
• Identification of Coronary and Cardiac Circulatory Structures
by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

11. Student demonstrates an understanding of the Vascular System of the body, including:
   - Identification of Vessel Structure
   - Identification of Arteries, Veins, Capillaries
   - Identification of Circulatory Routes
   - Principal Arteries and Veins

   by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

12. Student demonstrates an understanding of the Respiratory System of the body, including:
   - Identification of Structures of the Upper Respiratory Tract
   - Identification of Basic Structures of the Lower Respiratory Tract
   - Identification of Pulmonary Ventilation Structures

   by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

13. Student demonstrates an understanding of the Urinary System of the body, including:
   - Identification of Basic Kidney Structures
   - Identification of Basic Nephron Structure
   - Identification of Ureters, Urinary Bladder, Urethra

   by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

14. Student demonstrates an understanding of the Digestive System of the body, including:
   - Identification of Oral and Esophageal Structures
   - Identification of Basic Stomach Structures
   - Identification of Basic Small Intestine Structures
   - Identification of Basic Large Intestine Structures
   - Identification of Basic: Liver, Pancreas, Gall Bladder, Hepatic Portal Structures

   by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

15. Student demonstrates an understanding of the Reproductive Systems of the body, including:
   - Identification of Basic Male Reproductive Anatomy (primary and secondary sex organs)
• Identification of Basic Female Reproductive Anatomy (primary and secondary sex organs) by taking a written examination, of at least one hour, and passing with an average minimum score of no less than 60% over the 4 course examinations, and completing workbook assignments, as outlined in course syllabus.

CLASS MEETING TIMES:  Tuesdays & Thursdays 2:00-3:20pm

LOCATION:  HB08


GRADING:

Earning Credit: The grade for the course is determined by written assessments: a combination of chapter specific workbook assignments, and written examinations. There are a total of 20 Workbook assignments, 3 each mid-term exams and a final exam. Students must complete the assigned 20 each chapters of Workbook assignments (due upon request without notice), worth a total of 50 points. The 3 each Mid-term Exams are worth 50 points each, for a total of 150 points; and the Final Exam is worth 100 points.

This offers a possible total of 280 points. Final, passing grade/scoring for the course is solely based upon the student's percentage of these possible 280 points. Students must have a minimum final total of 167 points (59.5%) to pass the course.
Extra Credit: For students satisfying the criteria to pass the course, extra credit may be available as indicated by the instructor. Students must also have no unexcused absences for all of the classes of this course. Extra credit will not pass a failing student.

Exam Scoring / Final Grading

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100%</td>
</tr>
<tr>
<td>B</td>
<td>80-89.4%</td>
</tr>
<tr>
<td>C</td>
<td>70-79.4%</td>
</tr>
<tr>
<td>D</td>
<td>60-69.4%</td>
</tr>
<tr>
<td>F</td>
<td>0-59.4%</td>
</tr>
</tbody>
</table>

Point Breakdown

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>50</td>
</tr>
<tr>
<td>3 Mid-Term Exams</td>
<td>150</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
</tr>
<tr>
<td>Total Possible</td>
<td>300</td>
</tr>
</tbody>
</table>

ATTENDANCE and MAKE-UPS:

Attending all classes is critical to learning the course material; therefore, they are best attended without missing any. For an absence to be excused, Students must contact the instructor (using UM email) in advance of any absence, to discuss & plan possible academic outcomes. Students are also required to take the mid-term & final exams during the scheduled time, unless pre-arranged with instructor's approval. All make-ups must be satisfied within one week of absence.

ACADEMIC CONDUCT:

All students must practice academic honesty. Academic misconduct is subject to academic penalty by disciplinary sanction from the University of Montana. All students need to be familiar with the Student Conduct Code. The Code is available online at:

The Link to Student Conduct Code is [http://www.umt.edu/sa/upsa/index.cfm/page/1321](http://www.umt.edu/sa/upsa/index.cfm/page/1321)

STUDENTS WITH DISABILITIES:

Students with disabilities may request reasonable modifications by contacting your instructor. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students (DSS). "Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications. For more information, please consult

Link to Disability Student Services website is [http://www.umt.edu/dss/](http://www.umt.edu/dss/)