Course Title – Human Anatomy and Physiology II
Course Prefix and Number – BIOL 2402
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 – (Continuation of BIOL 2401) Study of the structure and function of human anatomy, including the digestive, urinary, reproductive, respiratory, and circulatory systems.

Prerequisites/Corequisites - TSI satisfied in reading and writing; BIOL 2401 with a grade of “C” or better.

Approvals – the contents of this document have been reviewed and are found to be accurate.

Prepared by    Wendy Waters    Date 9/14/11
Reviewed by department head    Kim Raun    Date 9/14/11
Accuracy verified by Division Chair    Kevin Dees    Date 10/10/2011
Approved by Dean of Vocational Instruction or Vice President of Instruction    Leigh Ann Collins    Date 12/01/11
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
I. Maintaining the metabolism and homeostasis of the body
   A. Cardiovascular system
      1. Blood
         a. Types and functions of cells
         b. Blood plasma
         c. Blood types
         d. Clot formation and dissolution
      2. Heart
         a. Anatomy
         b. Nerve supply and impulse conduction system
         c. Physiology of the cardiac cycle (ECG)
      3. Blood vessels
         a. Arteries, veins and capillaries
         b. Blood pressure
         c. Microcirculation
         d. Circulation
      4. Lymphatic system
         a. Function
         b. Tissues and organs
         c. Lymphatic circulation
      5. Immune System
         a. Cells
         b. Antibodies
   B. Respiratory system
      1. Organs of the respiratory tract
      2. Kinds of respirations
      3. Mechanisms of respirations
      4. Volumes of air exchanged
      5. Transportation of gases
      6. Control of respiration
   C. Digestive system
      1. Primary organs of the digestive system
      2. Accessory organs of the digestive system
      3. Digestion
         a. Physical processes
         b. Chemical processes
      4. Absorption
      5. Nutrition
         a. Sources of nutrients
         b. Function of nutrients
      6. Metabolism and metabolic rates
   D. Urinary system
      1. Organs
      2. Physiology
         a. Filtration
         b. Reabsorption
         c. Secretion
         d. Hormonal control
e. Fluid volume and distribution
3. Characteristics of urine
4. Fluid and electrolyte balances and pH Balance
   a. Principles of fluid balance
   b. Electrolyte concentration and distribution
   c. pH control

II. Reproduction of the Human Being
   A. Male reproductive system
      1. Organs and glands
      2. Hormonal regulation
      3. Spermatogenesis
   B. Female reproductive system
      1. Organs
      2. Female menstrual cycle
      3. Hormonal regulation
      4. Oogenesis

Lab Outline
   I. Anatomy of the heart, cardiac muscle histology
   II. Histology of blood vessels; major arteries and veins
   III. EKG, heart sounds, pulse and blood pressure
   IV. Hematology; cell types, blood typing, hemoglobin determination
   V. Anatomy and histology of the respiratory system
   VI. Spirometry
   VII. Digestive system
   VIII. Urinary system
   IX. Reproductive System

II. Course Learning Outcomes

<table>
<thead>
<tr>
<th>Course Learning Outcome</th>
<th>Method of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify important anatomical structures of the cardiovascular, lymphatic, respiratory, digestive, urinary and reproductive systems</td>
<td>1. laboratory practicals</td>
</tr>
<tr>
<td>2. Compare the cardiovascular, lymphatic, immune, respiratory digestive, urinary, and reproductive systems with respect to: 1) overall function, 2) function of important anatomical structures within each system, and 3) interaction between systems</td>
<td>2. lecture exam questions and post-test exam questions</td>
</tr>
<tr>
<td>3. Describe the hormonal and/or neural regulation of the cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive systems necessary for homeostasis</td>
<td>3. lecture exam questions and post-test exam questions</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Grade Assignments (%)</th>
<th>Lecture Average:</th>
<th>Exam average (3-4 exams)</th>
<th>Other (homework, quizzes, projects, etc.)</th>
<th>Laboratory Average (average of 3 lab practicals)</th>
<th>Final Exam (includes at least 50% comprehensive material)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>55%</td>
<td>30-55%</td>
<td>0-25%</td>
<td>25%</td>
<td>20%</td>
</tr>
<tr>
<td>A</td>
<td>100-90</td>
<td>B 89-80</td>
<td>C 79-70</td>
<td>D 69-60</td>
<td>F Below 60</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 Checklist, including the following:
   • Basic Intellectual Competencies
   • Perspectives
   • Exemplary Educational Objectives

☐ - WECM Courses
   Attach the following:
   • Program SCANS Matrix
   • Course SCANS Competencies Checklist
### Course Prefix & Number: BIOL 2402

<table>
<thead>
<tr>
<th>Competency</th>
<th>Method of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>READING: Reading at the college level means the ability to analyze and interpret a variety of printed materials – books, articles, and documents.</td>
<td></td>
</tr>
<tr>
<td>WRITING: Competency in writing is the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience.</td>
<td></td>
</tr>
<tr>
<td>SPEAKING: Competence in speaking is the ability to communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion, and audience.</td>
<td></td>
</tr>
<tr>
<td>LISTENING: Listening at the college level means the ability to analyze and interpret various forms of spoken communication.</td>
<td></td>
</tr>
<tr>
<td>CRITICAL THINKING: Critical thinking embraces methods for applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies.</td>
<td></td>
</tr>
<tr>
<td>COMPUTER LITERACY: Computer literacy at the college level means the ability to use computer-based technology in communicating, solving problems, and acquiring information.</td>
<td></td>
</tr>
</tbody>
</table>
Course Prefix & Number: BIOL 2402

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Method of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Establish broad and multiple perspectives of the individual in relationship to the larger society and world in which he or she lives, and help the student to understand the responsibilities of living in a culturally- and ethically-diversified world;</td>
<td>Students will successfully answer questions covering the cardiovascular system (examples: principles of blood typing and transfusion reactions; description and consequences of arteriosclerosis).</td>
</tr>
<tr>
<td>2. Stimulate a capacity to discuss and reflect upon individual, political, economic, and social aspects of life to understand ways to be a responsible member of society;</td>
<td>Students will successfully complete lab exercises which relate to technological practices used to determine physiological endpoints (examples include performing blood typing or determining lung volumes and capacities).</td>
</tr>
<tr>
<td>3. Recognize the importance of maintaining health and wellness;</td>
<td>Students will successfully answer lecture exam questions involving the immune system (examples: use of engineered, animal, or cadaver tissues for organ transplantation; use of vaccines to prevent illness; benefit versus risk of cancer treatments which cause immunosuppression).</td>
</tr>
<tr>
<td>4. Develop a capacity to use knowledge of how technology and science affect lives;</td>
<td>Students will successfully answer exam questions that integrate anatomy and physiology with biochemistry or physics (examples: drug action, mechanics of blood flow, relationships of pressure with volume and resistance).</td>
</tr>
<tr>
<td>5. Develop personal values for ethical behavior;</td>
<td></td>
</tr>
<tr>
<td>6. Develop the ability to make aesthetic judgments;</td>
<td></td>
</tr>
<tr>
<td>7. Use logical reasoning in problem solving;</td>
<td></td>
</tr>
<tr>
<td>8. Integrate knowledge and understanding of the interrelationships of the scholarly disciplines</td>
<td></td>
</tr>
</tbody>
</table>
### Exemplary Educational Objectives

**Course Prefix & Number:** BIOL 2402  
**Component Area:** Natural Sciences

<table>
<thead>
<tr>
<th>Exemplary Educational Objective</th>
<th>Method of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Understand and apply method and appropriate technology to the study of natural science.</td>
<td>Skill on laboratory practical: demonstrate ability to measure lung volumes and/or capacities.</td>
</tr>
<tr>
<td>2. Recognize scientific and quantitative methods and the difference between these approaches and other methods of inquiry; and communicate findings, analyses, and interpretations both orally and in writing.</td>
<td>Lab exercise on the measurement of lung volumes and capacities with a wet spirometer. Individual and group values will be compared and analyzed. These findings will be interpreted with respect to normal reported values.</td>
</tr>
<tr>
<td>3. Identify and recognize the differences among competing scientific theories.</td>
<td>Post-test questions covering theories explaining physiological principles.</td>
</tr>
<tr>
<td>4. Demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.</td>
<td>Lecture exam question covering factors which may lead to infertility in men or women.</td>
</tr>
<tr>
<td>5. Demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.</td>
<td>Lecture exam question pertaining to medical procedures that preserve life (examples: vascular stents, angioplasty, coronary bypass, ventricular assist devices).</td>
</tr>
</tbody>
</table>