New Course Request

<table>
<thead>
<tr>
<th>Check Appropriate Boxes:</th>
<th>Undergraduate credit □</th>
<th>Graduate credit □</th>
<th>Professional credit □</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. School/Division</td>
<td>Health &amp; Rehabilitation Sciences/Physical Therapy</td>
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<tr>
<td>2. Academic Subject Code</td>
<td>AHPT</td>
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<tr>
<td>3. Course Number</td>
<td>P531 (must be cleared with University Enrollment Services)</td>
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<td>4. Instructor</td>
<td>Fuchs</td>
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<td>5. Course Title</td>
<td>Clinical Pathophysiology I</td>
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<tr>
<td>Recommended Abbreviation (Optional)</td>
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<td>(Limited to 32 Characters including spaces)</td>
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<td>6. First time this course is to be offered (Semester/Year):</td>
<td>Spring/2011</td>
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<td>7. Credit Hours: Fixed at</td>
<td>4</td>
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<td>or Variable from</td>
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<td>8. Is this course to be graded S-F (only)? Yes □ No □</td>
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<td>9. Is variable title approval being requested? Yes □ No □</td>
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<td>10. Course description (not to exceed 50 words) for Bulletin publication:</td>
<td>This two part course is designed to provide students with knowledge in normal and abnormal physiology, including an understanding of how cells, tissues, organs, and organ systems work together. The first semester includes modules on normal and abnormal cell physiology, metabolism, muscle, cardiovascular, respiratory, and endocrine systems.</td>
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<td>11. Lecture Contact Hours: Fixed at</td>
<td>4</td>
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<td>or Variable from</td>
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<tr>
<td>12. Non-Lecture Contact Hours: Fixed at</td>
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<td>or Variable from</td>
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<td>13. Estimated enrollment:</td>
<td>36</td>
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<td>of which</td>
<td>100 percent are expected to be graduate students.</td>
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<td>14. Frequency of scheduling:</td>
<td>once per year</td>
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<td>Will this course be required for majors?</td>
<td>yes</td>
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<td>15. Justification for new course:</td>
<td>See attachment for justification</td>
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<td>16. Are the necessary reading materials currently available in the appropriate library?</td>
<td>yes</td>
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<td>17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.</td>
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<td>18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant.</td>
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<td>19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.</td>
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</table>

Submitted by: [Signature] Date 2/12/2010
Department Chairman/Division Director

Approved by: [Signature] Date 2/26/10
Dean

Date
Chancellor/Vice-President

Date
University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

UPS 724
University Enrollment Services Final—White; Chancellor/Vice-President—Blue; School/Division—Yellow; Department/Division—Pink; University Enrollment Services Advance—White
Clinical Pathophysiology 1: P531

Spring Semester 2011

INSTRUCTOR INFORMATION

- **Course Director:** Dr. Robyn K. Fuchs, PhD
  - Office/Mailbox: 326G Coleman Hall
  - Office Phone: 274-3145
  - Lab: Fesler 105
  - E-Mail: rfuchs@iupui.edu
  - Office Hours: Tuesday from 8-10 am or by appointment

COURSE INFORMATION

- **Credit Hours:**
  - 4 (30 class meetings)
- **Class Times:**
  - Tues 1-3 pm (Nursing 242) and Thurs 9-11 am (Daly Center 185)
- **Required Textbooks and Supplies:**
  - 4X6 note cards, calculator
- **Course Website:**
  - All material and grades for this course will be posted on oncourse under P512-Clinical Physiology
  - *Forums board:* available on the course website to post questions regarding class material
- **Lecture Notes:**
  - PowerPoint notes will be posted on oncourse. Please print them and bring them to class with you. You will also need to bring your book and calculator to class.
- **Mentoring for Physiology:**
  - Tuesdays from 3:30-5:00 pm in Long 306
  - 2nd year mentors: Sandy Lim (sylim@iupui.edu), Stuart Engleman (snenglem@iupui.edu), Scott Strandberg (sstrandb@indiana.edu)

COURSE DESCRIPTION

- This course is designed to provide students in our DPT program with a solid foundation of normal and abnormal physiology, including an understanding of how cells, tissues, organs and organ systems work together. The first semester will include the following modules of normal and abnormal physiology:
  - Cell physiology, metabolism, muscle, cardiovascular, respiratory and endocrine

COURSE OBJECTIVES

- To provide a solid foundation of normal physiology which is necessary for your success in the practice pattern courses in the DPT program.
- Enhance your depth of knowledge of fundamental topics in physiology which will enable you to provide the best treatment and care for your patients with various conditions, disorders and diseases.
- To develop problem solving and critical thinking skills through the materials presented in class.
TEACHING METHODS
- To help make the most of your learning experience PowerPoint lectures will be supplemented with active learning activities, the case family series, and group work to help reinforce the material.

COURSE REQUIREMENTS
- Class attendance and participation is required and very important for your success in this course. You are responsible for reading before coming to class, successfully completing exams and quizzes, participating in class through discussions and class activities, and attending a minimum of 2 physiology mentoring sessions. It is important to email Dr. Fuchs if you will not be able to attend a lecture.

GRADING POLICY
- Your grade in this course is based on the following:
  - Exam 1 30%
  - Exam 2 30%
  - Exam 3 30%
  - Homework (8 quizzes; lowest 2 scores dropped) 10%

- **Grading policy information from DPT student handbook**: Students need to earn a minimum of a ‘C-‘ (70%) in each of the four foundational science courses (Gross Anatomy, Clinical Physiology, Neuroscience & Clinical Neurology, and Clinical Anatomy & Biomechanics) to continue in the DPT degree program, but will be dismissed if they earn a ‘C’ range (70-79%) grade in more than one of the foundational science courses in a single semester. The grade of incomplete may be given only upon showing of such hardship to a student as would render it unjust to hold the student to the time limits previously fixed for the completion of his/her work.

- **Grading scale**
  - A = 93-100%
  - A- = 90-92%
  - B+ = 87-89%
  - B = 83-86%
  - B- = 80-82%
  - C+ = 77-79%
  - C = 75-76%
  - C- = 70-74%
  - D = 60-69%
  - F = <60%

- **Academic integrity from DPT student handbook**: Dishonesty of any kind with respect to examinations, course assignments, alteration of records, or illegal possession of examination questions shall be considered cheating. It is the responsibility of the student not only to abstain from cheating but, in addition, to guard against making it possible for others to cheat. Any student who helps another student to cheat is as guilty of cheating as the student who assisted. Honesty requires that any ideas or materials taken from another source for either written or oral use must be fully acknowledged. Offering the work of someone else as one’s own is plagiarism. The offering of materials assembled or collected by others in the form of projects or collections without acknowledgement also is considered plagiarism. Any student who fails to give credit for ideas or materials that are taken from another source is guilty of plagiarism.

IMPORTANT TIPS FOR SUCCESS THIS SEMESTER
- **Email Dr. Fuchs Questions**: Please email us if you have any questions. If you come across a concept or topic that is difficult to understand email us the night before the lecture and we will make sure and spend extra time on that topic.
• **Learning Style:** Determine how you learn best to make the most of preparing for physiology. For example, do you do best listening to lectures, drawing pictures and diagrams, using a physiology coloring book, making acronyms and flashcards, helping teach your classmates.

• **Textbook:** Read the textbooks (Silverthorn; Goodman and Fuller) to help strengthen your understanding of material presented in class. Make sure you use the textbook as a reference to clarify material discussed in class.

• **Study Questions:** Practice the study questions that are assigned that we will work on in class. These serve as important practice questions to test your understanding of the material presented in class, and will help you prepare for the exams.

• **Study Groups:** Find a group of students you can meet with regularly to discuss class material and to help prepare for the exams.

• **Study Objectives:** Carefully go over the study objectives outlined for each class to prepare for the exams. You should use these as your study guide for material that will be covered on the exams. If something is not clear it is important to ask before the exam.

• **Physiology Mentoring:** Attend the physiology mentoring sessions. This is a great way to ask questions in a comfortable environment with your peers. Even if you don’t think you need help, it is a great way to practice what you have learned by explaining the material to your peers.

• **Take Good Notes:** Bring the PowerPoint lectures with you to each class and take good notes. Clarify you notes as soon as you can after class when the material is fresh in your mind, and make sure you can explain the material in your own words. If ANY material is confusing or unclear please see Dr. Fuchs as soon as you can, we are happy to help you in any way that we can.

• **Keep up with the Material:** Due to the large amount of material covered in this course it is important to stay caught up with both the lecture and reading material to ensure your successful mastery of physiology. It will be difficult to absorb all of the material if you leave it until the night before an exam. To ensure that you stay up with the material there will be 8 quizzes given throughout the semester.

• **Exams:** Exam questions will be based on the study objectives provided for each lecture. Use these to guide your efforts for studying. Use the textbook to help clarify material we discuss in class, but remember the textbook has more information than we are able to cover in class.

• **Survival Cards:** Take advantage of using survival cards (*details on next page*) to keep up with the class material and to help you prepare for the exams.
SURVIVAL CARDS

- You will be allowed to take notes on the assigned readings on one side of a 4x6 note card that you may use during the exams (not the quizzes).

- Rules
  1. You may only write on one side of the card which can only be 4x6.
  2. You may only handwrite your cards.
  3. Note cards are due at the start of each class in the drop box in the front of the room. NO exceptions.
  4. You are not graded on what you write on your cards or how many your turn in. This is to help you.
  5. Your note cards will be given back to you on the day of the exam.
  6. If you copy your classmate’s cards you will not get them back on the day of the exam. You must do your own work.

HOMEWORK and EXAM SCHEDULE

- There will be eight homework assignments, and these will count as 15% toward your final grade in the course. The lowest homework grade will be dropped at the end of the semester.

- There will be three exams during the semester which will count as 90% towards your final grade in the course. Specifics on the exams will be given to you one week prior to each exam. Study objectives for each class should be used as your study guide for the exams.
<table>
<thead>
<tr>
<th>Lecture</th>
<th>Topic</th>
<th>Reading</th>
<th>Homework</th>
<th>Instructor</th>
</tr>
</thead>
</table>
| 1       | Introduction  
Overview of course objectives and review of conversions/solutions,  
maintain physiology mentors | Chp 2-Silverthorn  
(p 36-37)                                    |          | Fuchs      |
| 2       | Cell Physiology: 1  
Membrane transport mechanisms, osmosis, ionicity, and IV fluids | Chp 5-Silverthorn  
(p 133-164)                                   |          | Fuchs      |
| 3       | Cell Physiology: 2  
Resting membrane potential, electrical signals in neurons and  
action potentials, impact of altering  
Na, K, Ca and toxins on electrical activity | Chp 5-Silverthorn  
(p 164-171)  
Chp 8-Silverthorn  
(p 247-273)                               | 1        | Fuchs      |
| 4       | Cell Physiology: 3  
Cell communication: neurotransmitters, chemical signals,  
and neuronal pathways | Chp 8-Silverthorn  
(273-290)                                    |          | Fuchs      |
| 5       | Cell Physiology: 4  
Homeostasis and cell injury | Chp 6-Goodman  
(p 197-215, 1644-6,  
1656-7)                                         |          | Fuchs      |
| 6       | Muscle Physiology: 1  
Structure and function of skeletal, smooth and cardiac muscle | Chp 12-Silverthorn  
(407-445)                                   | 2        | Fuchs      |
| 7       | Muscle Physiology: 2  
Neural, autonomic and skeletal muscle reflexes | Chp 13-Silverthorn  
(p 447-465)                                   |          | Fuchs      |
| 8       | Metabolism: 1  
Catabolic and anabolic pathways | Chp 4-Silverthorn  
(p 105-119)  
Chp 22-Silverthorn  
(p 725-742)                                 |          | Fuchs      |
| 9       | Metabolism: 2  
Lipid metabolism, and phosphocreatine, anaerobic and  
aerobic metabolism of skeletal muscle during exercise | Chp 22-Silverthorn  
(p 725-742)  
Chp 25-Silverthorn  
(p 814-816)                                 | 3        | Fuchs      |
| 10      | Metabolism: 3  
Discussion of article entitled | Article  
Turcotte and Fisher,  
Physical Therapy, 88  
(11):1279-1292                                 |          | Fuchs      |
| 11      | Metabolic Disorders: 4  
Diabetes: Type 1 and Type 2 | Chp 22-Silverthorn  
(p 742-747)  
Chp 11-Goodman  
(p 485-515)                                   |          | Fuchs      |
<table>
<thead>
<tr>
<th>Lecture</th>
<th>Topic</th>
<th>Reading</th>
<th>Quiz</th>
<th>Instructor</th>
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<tbody>
<tr>
<td>12</td>
<td>Cardiovascular Physiology: 1 Overview of cardiovascular system, heart structure, excitation-contraction coupling and relaxation, and action potentials</td>
<td>Chp 14-Silverthorn (p 468-487)</td>
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<td>Fuchs</td>
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<td>14</td>
<td>Cardiovascular Physiology: 3 Blood vessels, the regulation blood pressure and the lymphatic system</td>
<td>Chp 15-Silverthorn (p 513-545)</td>
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<td>Fuchs</td>
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<td>15</td>
<td>Cardiovascular Physiology: 4 Blood cells, blood types, and the synthesis of blood, hemostasis and tissue repair and the coagulation cascade</td>
<td>Chp 16-Silverthorn (p 547-567)</td>
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<td>Fuchs</td>
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<td>16</td>
<td>Cardiovascular Pathophysiology: 5 Inflammation and healing</td>
<td>Chp 6-Goodman (p 208-240)</td>
<td>5</td>
<td>Fuchs</td>
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<td>17</td>
<td>Cardiovascular Pathophysiology: 6 Cardiovascular diseases including ischemic heart disease, atherosclerosis</td>
<td>Chp 12-Goodman (p 519-607, 610-637)</td>
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<td>Fuchs</td>
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<td>18</td>
<td>Cardiovascular Pathophysiology: 7 Cardiovascular diseases including MI, congestive and restrictive heart failure</td>
<td>Chp 12-Goodman (p 519-607, 610-637)</td>
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<td>Fuchs</td>
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<td>19</td>
<td>Respiratory Physiology: 1 Overview of the respiratory system, gas laws and ventilation, and the ventilatory response to exercise</td>
<td>Chp 17-Silverthorn (p 569-596) Chp 25-Silverthorn (p 817-818)</td>
<td>6</td>
<td>Fuchs</td>
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<td>20</td>
<td>Respiratory Physiology: 2 Gas exchange and the transport of oxygen and carbon dioxide, factors influencing hemoglobin’s affinity for oxygen and carbon dioxide</td>
<td>Chp 18-Silverthorn (p 598-613)</td>
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<td>Fuchs</td>
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<td>21</td>
<td>Respiratory Physiology: 3 Neural regulation of breathing</td>
<td>Chp 18-Silverthorn (p 613-621)</td>
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<td>Fuchs</td>
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<tr>
<td>Lecture</td>
<td>Topic</td>
<td>Reading</td>
<td>Quiz</td>
<td>Instructor</td>
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<td>22</td>
<td>Respiratory Pathophysiology: 4 Respiratory diseases including COPD and cystic fibrosis</td>
<td>Chp 15-Goodman (p 742-749, 759-774, 816-827)</td>
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<td>Fuchs</td>
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<td>23</td>
<td>Respiratory Pathophysiology: 5 Respiratory diseases including restrictive lung disease and other respiratory diseases</td>
<td>Chp 15-Goodman (p 742-749, 759-774, 816-827)</td>
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<td>Fuchs</td>
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<td>EXAM 2 (Lectures 12-23)</td>
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<td>24</td>
<td>Endocrinology: 1 Introduction to endocrine system, synthesis and transport of hormones, overview of posterior and anterior pituitary hormones and their regulation by the hypothalamus</td>
<td>Chp 7-Silverthorn (p 216-241)</td>
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<tr>
<td>25</td>
<td>Thanksgiving Break</td>
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<tr>
<td>26</td>
<td>Thanksgiving Break</td>
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<td>25</td>
<td>Endocrinology: 2 Thyroid and adrenocortical hormones, and growth hormone</td>
<td>Chp 23-Silverthorn (p 758-771)</td>
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<td>Fuchs</td>
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<td>26</td>
<td>Endocrinology: 3 Parathyroid hormone, calcitonin, calcium and phosphate metabolism, the regulation of vitamin D, and osteoporosis</td>
<td>Chp 23-Silverthorn (p 771-779)</td>
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<td>Fuchs</td>
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<td>27</td>
<td>Endocrine Pathology: 4 Pituitary and thyroid diseases</td>
<td>Chp 10-Goodman (p 453-484)</td>
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<td>Fuchs</td>
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<td>28</td>
<td>Endocrine Pathology: 5 Parathyroid and adrenal diseases</td>
<td>Chp 10-Goodman (p 453-484)</td>
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<td>Fuchs</td>
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<td></td>
<td>FINAL EXAM (Lectures 24-28) Exam will be held in Long 306 from 9-11 am</td>
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**The above schedule and procedures are subject to change in the event of extenuating circumstances.**

**ADDITIONAL RESOURCES**

www.scholar.google.com (Good resource for finding research articles)

www.apta.org (American Physical Therapy Association)

www.sciencemag.org (Science)

www.pubmed.com (Resource for obtaining peer reviewed articles)

www.physiologyonline.org (Physiology journal)

www.the-aps.org (The American Physiological Association)