

# Biology 2520: PATHOPHYSIOLOGY

Course Syllabus Fall 2017

**Faculty:** Paulette McKenna, RN, MSN, CEN

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**Class Hours:** Wednesday evening, 5:15-7:45 pm

**Office Hours:** Held in classroom after class and by telephone conversation by appointment throughout the week

I check e-mail and voice mail on a regular basis. These are good ways to contact me. If you need to contact me in a more urgent manner, texting would be the best option.

**Credits:** 2 ½ hours per week of class time for 3 credits.

**Textbook:** Heuther and McCance (2017), "Understanding Pathophysiology" 6<sup>th</sup> Edition. ISBN 978-0-323-35409-7.

**Course Description:** This course is designed to give the student a beginning understanding of disease and dysfunctional variations of normal health across the lifespan. It is based upon the sciences of biology, chemistry, anatomy, and physiology. We will explore selected impaired health states as well as the symptoms and behaviors that are manifested with these conditions. I want you to enjoy this class and use it as a stepping-stone to for applying the knowledge you have to a clinical setting.

**Pre-Requisites:** There are two pre-requisites for this class (Anatomy and Physiology). You need a firm understanding of normal anatomy and physiology before you can understand the abnormal.

**Course Objectives:** At the completion of this course, the student should be able to:

- Verbalize lifestyle and environmental risk factors that contribute to disease.
- Relate normal body functioning to the changes that occur as a result of illness. The body's ability to compensate for these illnesses and related changes will also be discussed.
- Apply critical thinking skills in interpreting data and evaluating the pathogenesis of major illnesses and specific disease states.
- Apply an understanding of disease mechanisms in your future healthcare career.

**Grading:** Grades will be determined by your performance on the following:

|                    |     |
|--------------------|-----|
| Exams x 4          | 40% |
| Quizzes x 9        | 28% |
| Final Exam         | 20% |
| Disease Fact Sheet | 12% |

Any exam/quiz/paper that is missed will have a late penalty to make up. There will be a 25% per class period deduction, unless special arrangements have been made with the instructor. No exam scores will be "dropped" in this class. The Final Exam is comprehensive.

Final grades will be determined according to the following scale:

|      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|
| A    | A-   | B+   | B    | B-   | C+   | C    | C-   | D    | F    |
| ≥93% | ≥90% | ≥87% | ≥83% | ≥80% | ≥77% | ≥73% | ≥70% | ≥60% | <60% |

Extra Credit: At the end of the semester you can complete the USU online course evaluation for 5 points of extra credit.

**Course Content Disclaimer:** Students that take this class are usually preparing for a professional career in a healthcare field. For that reason, students should not be surprised that our discussion may include issues such as birth control, reproduction, pregnancy, sexually transmitted diseases, and related issues. This information will be presented in a professional manner.

**Attendance:** Attendance is not required; however, you will miss the flow and activities that we will participate in. Some quizzes will be taken as a group during class and extra credit opportunities may be available to those present during select class periods.

**Professionalism:** I expect you to conduct yourself professionally at all times. This includes but is not limited to coming to class prepared and on time, being discrete if you must leave or enter the classroom while class is in session, reading non class related materials, texting, or sleeping in class. Treat all class participants as well as the classroom respectfully. Please do not be disruptive during our class time. You are spending a lot of money and time to take this class. When someone is disruptive during our time, they are stealing the opportunity to learn from other students. I am empowering the facilitators to report disruptive behaviors to me and disruptive behavior will result in a lower grade in this class.

**Plagiarism:** Plagiarism includes knowingly "representing, by paraphrase or direct quotation, the published or unpublished work of another person as one's own in any academic exercise or activity without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials." The penalties for plagiarism are severe. They include warning or reprimand, grade adjustment, probation, suspension, expulsion, withholding of transcripts, denial or revocation of degrees, and referral to psychological counseling.

Please do not test this! Any assignment showing conclusive evidence of plagiarism or academic dishonesty will be given a "zero" grade. A second offense will result in an "F" for the course.

**Students with Disabilities:** The Americans with Disabilities Act states: "Reasonable accommodation will be provided for all persons with disabilities in order to ensure equal participation within the program. If a student has a disability that will likely require some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center (797-2444), preferably during the first week of the course. Any request for special consideration relating to attendance, pedagogy, taking of examinations, etc., must be discussed with and approved by the instructor. In cooperation with the Disability Resource Center, course materials can be provided in alternative format, large print, audio, diskette, or Braille."

**Grievance Process (Student Code):** Students who feel they have been unfairly treated [in matters other than (i) discipline or (ii) admission, residency, employment, traffic, and parking - which are addressed by procedures separate and independent from the Student Code] may file a grievance through the channels and procedures described in the Student Code: Article VII Grievances

**Withdrawal Policy and "I" Grade Policy:** Students are required to complete all courses for which they are registered by the end of the semester. In some cases, a student may be unable to

complete all of the coursework because of extenuating circumstances, but not due to poor performance or to retain financial aid. The term 'extenuating' circumstances includes: (1) incapacitating illness which prevents a student from attending classes for a minimum period of two weeks, (2) a death in the immediate family, (3) financial responsibilities requiring a student to alter a work schedule to secure employment, (4) change in work schedule as required by an employer, or (5) other emergencies deemed appropriate by the instructor.

### Tentative Biology 2520 Schedule – Fall 2017

| Dates          | Topics   | Chapters Covered             |
|----------------|--|------------------------------|
| 30 – August    | Introduction to class<br>Review cellular function<br>Altered cellular and tissue biology       | Chapters 1 & 4               |
| 6 – September  | Quiz # 1<br>Genes and Genetic Disorders  | Chapter 2 & 3                |
| 13 – September | Quiz # 2<br>Immunity, Inflammation<br>Infection, Hypersensitivity, and<br>Immunodeficiency     | Chapters 6, 7, & 8           |
| 20 – September | Exam # 1<br>Hematopoietic Function   | Chapters 20, 21,<br>& 22     |
| 27 – September | Quiz # 3<br>Cardiovascular part 1  | Chapters 23, 24,<br>& 25     |
| 4 – October    | Quiz # 4<br>Cardiovascular part 2  | Chapters 23, 24,<br>& 25     |
| 11 – October   | Exam # 2<br>Respiratory  | Chapters 26, 27,<br>& 28     |
| 18 – October   | Quiz # 5<br>Fluid and Electrolytes   | Chapter 5                    |
| 25 – October   | Quiz # 6<br>Renal Function   | Chapters 29, 30,<br>& 31     |
| 1– November    | Exam # 3<br>GI function  | Chapters 35, 26,<br>& 37     |
| 8 – November   | Quiz # 7<br>Endocrine Function   | Chapters 18 & 19             |
| 15 – November  | Quiz # 8<br>Stress<br>Fact Sheet due to Peer by this date.                                     | Chapter 9 (stress)           |
| 22 – November  | No Class – Have a super Fun Thanksgiving<br>Holiday!!!   |                              |
| 29 – November  | Exam # 4<br>Neuro Part 1<br><u>Fact sheet assignment due by Saturday<br/>December 2, 2017.</u> | Chapters 13, 15,<br>16, & 17 |
| 6 – December   | Quiz # 9 (take home open book quiz due<br>Friday December 8, 2017)<br>Neuro part 2             | Chapters 13, 15,<br>16, & 17 |

|              |   |  |
|--------------|---|--|
| 13- December | Final Exam **To be done in our classroom at our regular time (5:15 pm) unless prior arrangements are made |  |
|--------------|---|--|

## Essential Content

### Cellular Function

- \* Cellular and Tissue characteristics \* Cellular adaptation, injury, healing
- \* Genetic control and inheritance \* Genetic and Congenital alteration in cell differentiation

### Body Defenses

- \* Immunity and inflammation \* Mechanisms of infectious disease
- \* Alterations in immune response \* Acquired Immunodeficiency Syndrome

### Hematopoietic function

- \* Blood cells and hematopoietic \* Alterations in homeostasis
- \* RBC's and alterations in transport \* Disorders of WBC's and lymphoid tissue

### Cardiovascular function

- \* Control of the circulation \* Alterations in blood flow in the systemic circulation
- \* Alterations in Blood Pressure \* Alterations in cardiac function
- \* Heart Failure and Shock \* Disorders of cardiac conduction and rhythm

### Respiratory function

- \* Control of respiratory function \* Alterations in ventilation and gas exchange
- \* Alterations in respiratory function (RTI, neoplasms, and childhood disorders)

### Fluid, electrolyte and acid-base

- \* Control of fluid, electrolytes, and acid-base
- \* Alterations in fluid and electrolytes \* Alterations in acid-base

### Urinary Function

- \* Control of urinary function \* Alterations in urinary function
- \* Renal Failure \* Alterations in urine elimination

### Gastrointestinal Function

- \* Control of GI function \* Alterations in GI function
- \* Alterations in liver, gallbladder, and pancreas

### Endocrine Function

- \* Mechanisms of endocrine control \* Alterations in endocrine function
- \* Diabetes Mellitus

### Neural Function

- \* Organization and control of neural function \* Disorders of brain function
- \* Disorders of spinal cord function \* Disorders of motor function

### Musculoskeletal Function

- \* Normal Musculoskeletal function \* Alterations in skeletal function
- \* Alteration in muscle function