

Course Syllabus
BIO 347 Pathophysiology II
Department of Natural Sciences
Oregon Institute of Technology

“Don’t practice (study) until you get it right. Practice (study) until you can’t get it wrong”
- author unknown

Pathophysiology II

BIO 347

CRN 11137

Welcome to BIO 347! I’m looking forward to having an exciting and productive quarter with you!

Instructor: Dr. Molly O’Shaughnessy
Email: molly.oshaughnessy@oit.edu
Office Hours: available by appointment
Office Location: near Cleveland, Ohio
Instructor Phone: 330-241-3090

Class Location: online only
Class Day/Time: please see course schedule
Lab: none
Credit Hours: 3

Dr. O’Shaughnessy is on Eastern Standard Time

Offered Online: Fall, Winter, Spring, and Summer quarters for the 2020 – 2021 academic year

My availability: I read the class messages in the course at least once, usually twice a day, and once or more per weekend. This is the best way to contact me. I check my OIT email less often. I am often away from my phone, and usually do not pick up calls from numbers that I do not recognize.

Texts and Supplementary Materials

- **note:** you should already have these materials from BIO 346
- Recommended text (not required) *Understanding Pathophysiology*, by Sue E. Huether & Kathryn L. McCance, 6th edition or later, Elsevier; ISBN 978-0-323-35409-7
- or
- Students expecting to pursue a professional school education may prefer to purchase *Pathophysiology, the Biologic Basis for Disease in Adults and Children*, by McCance & Huether, 7th edition, Elsevier ISBN 978-0-323-08854-1 instead; this is the professional school version of the above book.
- A human anatomy and physiology college textbook of your choice.
- Optional: *Study Guide and Workbook for Understanding Pathophysiology*, by Parkinson, fifth edition, Elsevier
- There are many anatomy, physiology, and pathophysiology study aids available at the bookstore and online. Think about your personal learning style and buy accordingly.

Technology Requirements

- Computer with webcam and stable internet connection.
- Chromebooks do not work with the Proctoring software.

Catalog Course Description

- Study of the dynamic aspects of the disease process with emphasis on abnormal physiology. Detailed discussion of alterations of respiratory function, liver and digestive system, neurologic, urinary, musculoskeletal disorders, and Diabetes Mellitus. Systems interactions are discussed regularly throughout the course.

Prerequisites

BIO 200 Medical Terminology
BIO 233 Human Anatomy & Physiology III
BIO 346 Pathophysiology I
All with a grade of "C" or better

Course Overview

Pathophysiology is an important, foundational study upon which the further study and practice of medicine depends. First, you need to know how the body works under normal circumstances (i.e. Human Anatomy & Physiology). Then, pathophysiology teaches how that anatomy and physiology changes under different abnormal/disease conditions. Diagnosing, treating, prognosing, and preventing a disorder all depend on an understanding of the underlying pathophysiology.

Teaching Methodology

This course was developed pre-covid 19 as the online counterpart of the BIO 347 class that I developed and taught live on the Klamath Falls OIT campus for many years. To ensure that my online students received the same quality of experience as my live class students, my lectures were all videotaped during live classes or of me lecturing to an empty classroom. There still may be a few lectures that are audio only, where I voiced-over my PowerPoint slides.

The PowerPoint presentations are included in each module so that you can print them out and take additional notes while watching the videos. It is important to note that you could be tested on anything discussed in lecture, whether it is written in the PowerPoints or not. I have provided them only as an aid for notetaking. Studying only the PowerPoints would most likely result in a lower grade, and some items could be taken out of context. It is important that you listen and understand the concepts that are being discussed in the videos.

Online students actually have an advantage over live students, as they can stop the tape and have me repeat myself, or review parts of the tapes before exams.

Student Learning Outcomes

Upon completion of this course, the student should be able to...

1. Characterize, describe, and understand the signs, symptoms, consequences, and abnormal physiology of cardiac disorders such as valvular dysfunction, myocarditis, pericarditis, the cardiomyopathies.
2. Characterize, describe, and understand importance and consequences of various common congenital heart diseases, including the concept of blood shunting
3. Characterize, describe, and understand the importance and consequences of Congestive Heart Failure and its interplay with other systems in the body; be able to distinguish between the causes, effects, and clinical presentations of right-sided failure vs. left-sided failure, including the concepts of workload, preload, and afterload; understand the implications of the Frank-Starling Law and compensated vs. non-compensated heart failure; understand the renal consequences of heart failure and activation of the rennin-angiotensin system
4. Characterize, describe, and understand the abnormal physiology of the diseases of the respiratory system, including mechanisms for pulmonary edema formation, types of pleural effusions and atelectasis; the contributions of chest wall restriction and inhalation disorders in the development of respiratory disease; the concept of obstructive vs. restrictive lung disease; causes, risks, pathogenesis, and complications of specific diseases including asthma; chronic bronchitis, emphysema, ARDS, cystic fibrosis, various types of pneumonia, tuberculosis, and lung cancer
5. Characterize, describe, and understand the abnormal physiology which occurs in Diabetes Mellitus (DM) including the distinction between DM and Diabetes Insipidus; normal insulin physiology; compare and contrast the characteristics and pathogenesis of type 1 DM and type 2 DM, including the concept of insulin resistance; describe the major complications of DM including those seen in the cardiovascular, renal, and nervous systems and the eyes, and why they occur
6. Characterize, describe, and understand the abnormal physiology in exocrine pancreatic disorders, including the concept of maldigestion vs. malabsorption, complications of cystic fibrosis, acute pancreatitis, and pancreatic tumors
7. Recall the normal functions of the liver, including bilirubin metabolism, and understand the physiology of jaundice, including conjugation types, and the concept of pre-hepatic, hepatic, and post-hepatic jaundice; the concept of physiologic and pathologic hyperbilirubinemia in adults and newborns
8. Characterize, describe, compare and contrast various disorders of the liver including fatty liver disease, alcoholic liver disease, types of viral hepatitis, types of cirrhosis of the liver; the concept of portal hypertension and the resultant clinical consequences; liver failure, and gall bladder diseases

9. Characterize, describe, and understand various disorders of the urinary system, including congenital abnormalities; bladder issues of cystitis, urethral syndrome, vesicoureteral reflux, neurogenic bladder, and bladder tumors; urinary tract obstruction and nephrolithiasis; and kidney problems such as acute pyelonephritis, glomerulonephritis, nephrotic syndrome, and acute and chronic renal failure

10. Recall the normal microanatomy of bones, their blood supply, and the concept of Wolf's Law; characterize the physics involved in skeletal trauma; define various fracture types, describe the process of fracture healing, and potentially fatal vs. non-fatal fracture repair complications; the pathogenesis and risks associated with the development of osteoporosis, osteomyelitis, scoliosis, and intervertebral Disc Disease

11. Understand and describe various headache types, implications and consequences of head trauma including cerebral edema, concussions, contusions, intracranial hemorrhages and hematomas, increased intracranial pressure, and herniation of the brain; recall normal formation and flow of CSF, and its relationship with hydrocephalus; describe the decreasing levels of consciousness; describe the types and phases of seizures; describe the disorders of cerebrovascular accidents, cerebral aneurysms, arteriovenous malformations, and various nervous system infections (prions, polio, rabies, meningitis); compare and contrast the degenerative disorders of Alzheimer's disease, Parkinson's disease, and multiple sclerosis

Course Schedule:

Week	Day	Topic or video #	SLO	Assessment
1	Mon.	read all course information		
	Wed.	Cardiac – valvular diseases, myocarditis, pericarditis	SLO 1	Exam 1, Q #3 – 8 Final Q #2 - 4
	Fri.	Cardiac – cardiomyopathies, congenital heart disease, CHF	SLO 1, 2 & 3	Exam 1, Q # 1, 2, 9, 10 - 14 Final Q #1, 5 - 8
2	Mon.	Respiratory – signs & symptoms, pulmonary edema & pleural effusions (7a & 7b)	SLO 4	Exam 1, Q #15 – 39, 50 Final Q #9 - 16
	Wed.	Respiratory – atelectasis, aspiration, chest wall restrictions, & inhalation disorders (7c & 7d)	SLO 4	
	Fri.	Respiratory – asthma (7e)	SLO 4	

3	Mon.	Respiratory – COPD, cystic fibrosis, & ARDS (7f & 7g)	SLO 4	
	Wed.	Respiratory – pneumonias & lung cancer (7h & 7i)	SLO 4	
	Fri.	Diabetes – (9a & 9b)	SLO 5	
4	Mon.	Diabetes – (9c & 9d)	SLO 5	Exam 1, Q #40 - 49 Final Q #17 - 19
	Wed.	Study time		
	Fri.	Pancreatic diseases	SLO 6	Exam 2, Q #1, 24 - 30 Final Q #20
5	Mon.	Liver - Jaundice	SLO 7	Exam 2, Q #2 – 4, 9 – 10, 20 – 23, 49 – 50 Final Q #21, 24 - 25
	Wed.	Liver – fatty liver & hepatitis	SLO 8	Exam 2, Q #5 – 19, 48 Final Q #22 - 31
	Fri.	Liver – cirrhosis, portal hypertension & liver failure	SLO 8	
6	Mon.	Gall bladder disorders	SLO 8	Exam 2, Q #31 – 47, 51 Final Q #32 - 37
	Wed.	Urinary disorders – part 1	SLO 9	
	Fri.	Urinary disorders – part 2	SLO 9	
7	Mon.	Study time		Exam 3, Q #1 – 18, 20, 46 Final Q #38 - 42
	Wed.	Skeletal - dynamic nature of bone	SLO 10	
	Fri.	Skeletal – skeletal trauma	SLO 10	
8	Mon.	Skeletal – bone healing & complications	SLO 10	
	Wed.	Skeletal – osteomyelitis & osteoporosis	SLO 10	
	Fri.	Skeletal – scoliosis, intervertebral disc disease 7 close-ups	SLO 10	
9	Mon.	Neurology – signs & symptoms	SLO 11	Exam 3, Q #19, 21 - 45 Final Q #43 - 47
	Wed.	Neurology – head trauma	SLO 11	
	Fri.	Neurology – cerebrovascular neuro	SLO 11	
10	Mon.	Neurology – infections	SLO 11	
	Wed.	Neurology – degenerative diseases	SLO 11	
	Fri.	Study time		

Grading

Please also see the University Registrar's web page on OIT's website.

Attendance:

You are expected to view all of the videos in the course in a timely manner. This will require a minimum of three hours per week. Because of the accelerated speed of college courses, there is little time to catch up if you get behind. Additional study time of two to three hours per lecture is highly recommended.

Exams:

Your grade will be determined by your performance on three exams, a syllabus quiz, and one accumulative final exam. All of these assessments will carry equal weight.

Abbreviations are not acceptable on exams; please write out all acronyms.

Exams are expected to be taken at their scheduled times!! You do not have to take them on the exact day mentioned in the syllabus. You have a fairly large window (one week) of availability for each exam, so this shouldn't be a problem if you plan ahead. You are totally responsible for any difficulties that rise due to late scheduling! Last minute scheduling will incur additional out of pocket fees, and a poorer selection of available times (3 am for example). Scheduling during the first part of the availability period will give you some "wiggle room" in case something unexpected comes up.

Late Policy: 12.5 penalty points will be deducted from your score on your first exam that is submitted late. A second offense will carry a penalty point deduction of 25 points. I have a "three strikes" policy, meaning that a third late submission will not be accepted and will receive a score of zero.

95% Policy: I want to encourage you to do the very best that you possibly can, not "What is the least I have to do to get an A?" To put my money where my mouth is, if you have a 95% or better average on the first two exams, I will excuse you from taking the accumulative final. You will still need to take exam #3, and your A is not guaranteed, should you do poorly on exam #3. I hope that you will rise to this challenge!

Total Points for Course:

505 total points in course:	
syllabus quiz	5 points
1 st lecture exam	125 points
2 nd lecture exam	125 points
3 rd lecture exam	125 points
<u>Accumulative Final</u>	<u>125 points</u>
Total	505 points

Grading Scale:

above 90% = A

above 80%, but below 90% = B
above 70%, but below 80% = C
above 60%, but below 70% = D
below 60% = F

Borderline Grades:

Please note that I do not “round-up” borderline grades. In case of borderline grades, I will always look at the percentage grade received on the accumulative final, or the grade received on the last exam taken, and will use that percentage to determine the grade received for the entire course.

Proctoring

For security reasons, all exams in this course must be proctored (supervised). This is accomplished through the web cam on your computer. Also, the proctoring software does not work on chrome books. If your computer does not have a webcam, or if you have a chrome book, you will need to make arrangements to use a computer that does.

OIT has contracted with ProctorU to supply this service. No other universities or testing centers are allowed. OIT has negotiated a fee structure with ProctorU that is significantly lower than their standard per exam fees. This fee is now covered as part of your online tuition at Oregon Tech, so that it can be covered by financial aid. If you drop the course within the deadline period of the Cashier’s timetable, then the fee will be reimbursed.

There are three important points for you to remember:

- 1.** You will still need to create an account with ProctorU, but your fees will be waived. You can set up this account by going to proctoru.com and then clicking on the ‘sign up’ button in the upper right-hand corner of the page.
- 2.** You **MUST** plan ahead!! Schedule ALL of your exam-taking appointments at the beginning of the quarter or at least one week ahead of time. This service is used by universities across the country, so there is competition for “good times”. If you delay, there may only be time slots like 2 am or 4 am left to choose from.
- 3.** If you fail to schedule at least 72 hours prior to taking your exam, and utilize the ‘Take It Now’ option, you will be charged an additional fee (approximately \$10 per exam). This fee is NOT covered in your online fees and must be paid out of your pocket.

Notice of Nondiscrimination

Oregon Institute of Technology does not discriminate on the basis of race, color, ethnicity, national origin, gender, disability, age, religion, marital status, sexual orientation or gender identity in its programs and activities.

This Syllabus is a contract for this class

Students are responsible not only for the syllabus content for each course in which they are enrolled, but also for the general expectations and behaviors expected of all OIT students. Please refer to the current copy of the OIT Student Handbook found at <https://www.oit.edu/docs/default-source/Student-Affairs-/student-handbook/student-conduct-code.pdf> to review these guidelines.

Academic Integrity Policy

Students are expected to demonstrate their knowledge with honesty and integrity. Oregon Tech considers academic dishonesty to be an unacceptable practice. The complete Oregon Tech Student Academic Integrity Policy is available on the Oregon Tech web site: <https://www.oit.edu/campus-life/student-affairs/student-resources/student-academic-integrity>.

Americans and Disabilities Act (ADA / Section 504)

Students with a documented or suspected disability who require assistance or academic accommodations should contact the office of Disability Services to discuss eligibility. Contact the Disability Services office at the campus closest to you: Klamath Falls (541) 851-5227 or Portland-Metro (503) 821-1305. More information can be found at <http://www.oit.edu/academics/ssc/disability-services>.

Family Education Rights and Privacy Act (FERPA)

All records related to this course are confidential and will not be shared with anyone, including parents, spouses, etc. without a privacy release form signed by you. More information can be found at <https://www.oit.edu/registrar>.

Title IX Information

Oregon Tech faculty and staff are committed to creating and maintaining a safe and equitable learning environment for the Oregon Tech community. Pursuant to U.S. Department of Education requirements, all Oregon Tech faculty and staff (other than designated confidential staff) must report any information they become aware of regarding gender-based bias, sexual harassment, sexual assault, sexual misconduct, relationship violence, or stalking involving a student to the University Title IX Coordinator. For more information please see <https://www.oit.edu/title-ix>. You can contact OIT's Title IX Coordinators' Office at 541-885-1108 or TitleIX@oit.edu.

Safety and Health Services for Students

Information on safety and health services available to students on campus can be found by contacting student health services at 541-885-1800. Some of these services may or may not be available to online students.

Additional information on Academic and University Policies can be found on OIT's main website.