

## Syllabus: Human Physiology I (PSL 431), 4 Credits

**Lectures:** M, W, F, 1:50 – 2:40 PM, E100 Veterinary Medical Center

**Required Textbook:** Human Physiology: From Cells to Systems, by Lauralee Sherwood, Cengage Publishing; 9th edition. ISBN 9781337382564

- This is a soft-cover textbook that is bundled with access to MindTap.
- MindTap includes learning resources that WILL be used in this course and can be accessed via D2L. You can also access a digital version of the textbook.

**Goal of this Class:** Understand how the body works at the cellular and tissue level

**Instructors:** PSL 431 is a *team-taught* course. There are 3 instructors for the semester.

Instructor	Phone	Email	Office	Office Hours
Gina Leininger, Ph.D. ( <i>&amp; Course Coordinator</i> )	884-5123	<a href="mailto:leininger@msu.edu">leininger@msu.edu</a>	3183 BPS	M&W, 10-11AM <i>or by appointment!</i>
Hongbing Wang, Ph.D.	884-5119	<a href="mailto:wangho@msu.edu">wangho@msu.edu</a>	3179 BPS	T&Th, 11AM - 12:00 PM
Richard Miksicek, Ph.D.	884-5120	<a href="mailto:miksicek@msu.edu">miksicek@msu.edu</a>	2240B BPS	M&W, 3-4PM or by appt.

### TAs & Recitations

Section	Day	Time	Location	TA	Email
3	W	10:20 AM-11:10 AM	118 Farrall Ag Eng Hall	Michael Steury	<a href="mailto:steurymi@msu.edu">steurymi@msu.edu</a>
5	W	11:30-12:20 PM	A148 Plant & Soil Science Bldg		
4	W	10:20 AM-11:10 AM	A158 Plant & Soil Science Bldg	Natalie Pizzimenti	<a href="mailto:pizzime2@msu.edu">pizzime2@msu.edu</a>
6	W	3:00-3:50 PM	204 Natural Sciences Bldg		
8	Th	12:40 - 1:30 PM	305 Ernst Bessey Hall	Brandon Coughlin	<a href="mailto:coughl33@msu.edu">coughl33@msu.edu</a>
9	Th	1:50-2:40 PM	118 Farall Ag Eng Hall		
10	Th	6:30-7:20 PM	1420 BPS		

### Tutors:

Contact [Dr. Leininger](#) if you are interested in obtaining a tutor.

### Important Dates:

- 9/22/16: Drop Deadline with Tuition Refund. No Grade Reported.
- 10/19/16: Drop Deadline, No Tuition Refund Given, No Grade Reported.
- After 10/19/16 a grade will be reported for all students registered in the course, regardless of whether they completed it.

## **Access Course Materials via D2L**

- Access [D2L](#) and the folder **FS16-PSL-431-Human Physiology I – ALL SECTIONS** for
  - Lecture and Recitation Materials
  - Aplia/MindTap Questions on D2L (REQUIRED AND GRADED)
  - Weekly Practice Questions (optional, but strongly encouraged!)
  - Practice Exams
  - Recorded Lectures
  - Grades

## **Lecture Format:**

- **38 lectures are given live by instructors**, will be recorded live and then subsequently posted to D2L. Recorded lectures are available for viewing but **not** download due to copyright restrictions.
- Glitches sometimes occur with recording and we do not guarantee that all lectures will be recorded/posted. Thus, if you don't attend the "live" lecture, you run the risk of missing material.
- All course materials are the copyrighted property of the course instructors and Michigan State University. Students are therefore not permitted to make, post, or otherwise distribute recordings of lectures or other course material without the advance written permission of the course instructor.

## **Recitation Format:**

- **13 Recitations are led by TAs** and focus on a challenging concept (or 2) from the previous lectures. Recitations will enable you to "actively exercise" concepts to enhance your learning.
- **Download Recitation materials and work through them PRIOR to coming to Recitation.** Preparing ahead of time will help you get the most of out the recitation.
- **There is a Quiz at the end of each recitation (5 multiple choice questions, 10 points)**
  - The quiz only covers material from the recitation. If you work through the recitation materials ahead of time *and* participate in the recitation you should be able to ace it.
  - One quiz question will come from the weekly practice questions
- **Your 3 lowest quiz scores (out of 13) will be dropped.**
- **No make-up quizzes will be given. If you miss recitation, you get 0 points on the quiz.**

## **Honors Option**

Information on the PSL-431 Honors Option can be found via **D2L → Content → HONORS OPTION**. Interested students should email [Dr. Leininger](#) about completing the Honors Option, and an Honors Option contract must be completed **BY SEPTEMBER 30<sup>th</sup>, 2016**. Any member of the PSL-431 instructor team may supervise an Honors Option.

## Grading

There are 695 points in this class. These come from:

Item	Points	# Questions	Notes	% of Grade
Syllabus Quiz	5	5	See D2L	1%
20 Reading Quizzes	50	Varies	2.5 points per Quiz	7%
13 Recitation Quizzes	100	5 per quiz	Really 130 pt, but <u>Drop 3 quizzes</u>	14%
Exam 1	90	30	3 pt per question	13%
Exam 2	90	30	3 pt per question	13%
Exam 3	90	30	3 pt per question	13%
Exam 4	90	30	3 pt per question	13%
Cumulative Final	180	60	3 pt per question	26%
<b>TOTAL POINTS</b>	<b>695</b>			

- **Reading Quizzes:** Each quiz is offered during a ~3 day “release window” during which you can take the quiz as many times as you like. After the release window closes the quiz CANNOT be made up. *Reading quiz questions are to start to get you to think about the material, and so are MUCH easier than exam questions. Don't use them to gauge your readiness for the exam! Use them to START learning the material.*
- **Recitation Quizzes** are composed of 5 multiple-choice questions, 2 points each. *Note that recitation quiz questions are also much easier than exam questions!*
- **Exams 1 - 4** are each composed of 30 multiple-choice questions, 3 points each. *Practice exam questions are similar in difficulty to the real exams. Use practice exams to prepare!*
- **The Cumulative Final** consists of 30 multiple-choice questions from the final section of the course (similar to a regular exam) **plus** 30 multiple-choice cumulative questions (e.g. questions from the first 4 sections of the course.) Each question is worth 3 points.

## Final Course Grades

- You can, and should, track your earned points on D2L. To do so, Go to the PSL-431 ALL SECTIONS folder, select Assessments and then select “Grades”
- Your points (out of total course points) are used to determine your final course grades (4.0, 3.5, 3.0, etc.), which will be assigned at the *end of the semester*.
- **THIS CLASS IS CURVED.** The final curve will be determined by the faculty, but *In general:*
  - *At least* the top 10-15% of the class will receive 4.0s.
  - *At least* the top 1/3 of the class will receive grades of 3.0 or better
  - The top 75% of the class will receive grades of 2.0 or better
  - The faculty reserve decision on the minimum score for each grade and how to apportion the grades among the bottom 25% of the class.
- Due to the curved nature of the course, if you help fellow students cheat you may end up sabotaging your own grade. Don't cheat!

- Petitions to re-evaluate a course grade will be considered in writing only (e-mail) and must be submitted to Dr. Leininger within one week after the beginning of the semester following completion of this 2015 PSL 431, according to University guidelines.

### ***Missed Exams:***

- Make-Up Exams are only possible if a student has a *legitimate health emergency* (serious illness, not a cold) or serious extenuating circumstances (refer to grievance policy below.)
- **Documentation** of the emergency must be provided by a physician on their letterhead, with their signature and contact information. Dr. Leininger reserves the right to contact the physician regarding the illness/condition that caused the student to miss the exam.
- If you unexpectedly miss an exam, Contact Dr. Leininger within 24 hr of the exam. Make-ups will be negotiated solely with Dr. Leininger.
- Note that a make-up exam may not be the same as the exam given during the normal exam period. Instructors reserve the right to use an alternate exam/final.

### ***Who to Contact If You Have Questions About...***

- **Grading, D2L Issues and Lecture Recordings, Adding, Dropping, Registration Issues, Exam Conflicts:** [Contact Dr. Leininger](#)
- **Course Content:** Contact the Instructor who taught the particular lecture/concept
- **Recitation:** Contact the TA of your section via their email address.
- **Attending a Different Recitation Section:** If you have a good reason for needing to attend a different recitation section (e.g. illness, unavoidable travel conflict, etc.) then **get permission** from [Dr. Leininger](#) **PRIOR to attending any other recitation section.**

### ***Accommodations for Students with Disabilities:***

- It is the responsibility of the student to make arrangements with [Dr. Leininger](#) and/or the RCPD Office (Room 120, Bessey Hall) regarding exam accommodations.
- Contact [Dr. Leininger](#) regarding accommodations at the beginning of the semester. Accommodation arrangements must be made at least 2 weeks prior to the exam or final, otherwise your accommodation request will not be honored.
- You will need to provide Dr. Leininger with your VISA issued by the Resource Center for Persons with Disabilities (RCPD) to arrange for accommodations. Students **must** be registered with RCPD in order to obtain a VISA. For an appointment with an RCPD disability specialist, call 884-7273 or visit the [RCPD website](#)

## **TIPS TO SUCCEED IN PSL 431: (How other students aced this class)**

- 1) **READ BEFORE EACH CLASS** so you are prepared for the lecture. Having some idea of the concepts will help you make the most of the lecture period.
- 2) **REVIEW YOUR NOTES OFTEN.** Ideally do this *after each lecture and again before the next one*. Spending an hour out of class for each hour in lecture will help a lot.
- 3) **STAY CURRENT.** Each concept builds upon the one before, so you need to keep up with the material. **DO NOT** wait until the week before an exam to study--- you will be lost.
- 4) **PUT IT INTO YOUR OWN WORDS.** Don't just passively look at lecture notes or listen to a lecture, that isn't enough. **You** need to actively work with the material to learn it at a sophisticated level. Past students suggest the following techniques to master the material:
  - **After you've listened to lecture and reviewed it a few times, Re-write each lecture to explain concepts in your own words / pictures.** Do this within 1 week of the lecture. Handwriting works best for this because it gives your brain some time to synthesize what you are trying to learn. **(Seriously, re-writing / drawing each lecture in your own words is Dr. L's #1 suggestion for PSL-431 success!!!)**
  - Then, test yourself by covering up everything but the title from a lecture slide: can you describe the main "point" or process on the slide? If not, re-write and study till you can!
  - Teach a concept to someone else (this will test if you really know it...)
- 5) **WRITE OUT ANSWERS TO THE LEARNING OBJECTIVES.** This is the material that instructors are expecting you to understand for the exam, so you should know it!
- 6) **INTEGRATE CONCEPTS.** Simply memorizing the notes will **not** enable you to pass this class. Really. You need to be able to deeply understand the pathways, mechanisms and **connect** them to other topics/mechanisms. Re-writing lectures and recitations will help.
- 7) **PRACTICE MULTIPLE CHOICE QUESTIONS.** The format of the exams/quizzes can trip students up. Practice with sample multiple choice questions in advance. Tips for this:
  - Carefully read the question. What is it asking for?
  - Next, look at each option as if it were a true / false question.
  - **Write out WHY each option is true or false. What makes it false, if anything?**
  - This process will help you identify the right option by *understanding why the other options are not right*.
- 8) **ASK QUESTIONS AND DO IT SOON!** Let your instructor or TA know if you are having trouble with a concept: we can't help if we don't know that there is a problem.

### ***Policy on Overlapping Finals:***

- According to University policy you may be eligible to take the final exam at an alternative time **IF** you have 2 final exams scheduled at the same time **OR** you have 3 final exams scheduled on the same calendar day (e.g. 3 final exams on the same Friday; does not apply if the 3 finals are scheduled within a 24 hr period over adjacent days.)
- **If either of these situations applies to you, CONTACT [DR. LEINNINGER](#) AT LEAST 2 WEEKS BEFORE THE FINAL WEEK OF CLASSES** and she will schedule an alternate time for you to take the final exam. Requests made after this time will not be honored.
- Note: when a conflict as described above arises because of use of a common final (as in some multi-section chemistry courses), the course utilizing the common final will normally be responsible for scheduling an alternate for those students for whom conflicts arise (as per official MSU exam scheduling policy.)

### ***Rules for the Exams and Final:***

- NO notes or electronic devices are permitted for use during the exam/final. This includes cellular phones, music players/iPods, tablets, computers or any sophisticated personal calculators that exceeds a Four-Function capability (e.g. add, subtract, multiply, divide.)
- No questions on content will be answered during the exams. This policy is necessary because exams may be given in different locations and we wish to avoid any room/proctor bias.
- *Exams are computer scored based on answers on Scantron sheet. Exam results will be sent by email directly from the MSU Scoring Office to each enrolled student, usually within 1 wk of the exam date. It is the responsibility of the student to assure that his/her exam was graded correctly. These scores will be uploaded into the D2L gradebook.*
- Any appeals for additional credit on an exam because of a scoring error or student appeal to re-evaluate individual questions must be submitted in writing (email) to the relevant instructor and Dr. Leininger within 1wk of the time exam results are distributed. Appeals must provide justification for why the scoring issue or alternate answer deserves to receive credit. You cannot appeal a question that you failed to answer on the scantron sheet.

### ***Grief Absence Policy:***

Michigan State University is committed to ensuring that the bereavement process of a student who loses a family member during a semester does not put the student at an academic disadvantage in their classes. If you require a grief absence, contact Dr. Leininger and the Associate Dean of your college no later than one week after knowledge of the circumstance. Together, the Associate Dean and student determine the expected period of absence. Dr. Leininger will then work with you to make appropriate accommodations so that you are not penalized due to a verified grief absence.

Associate Dean: College of Natural Science  
Debra A. Dotterer  
[dotterer@msu.edu](mailto:dotterer@msu.edu)

Associate Dean: Lyman Briggs  
Jonelle Golding  
[goldingj@msu.edu](mailto:goldingj@msu.edu)

### **Course and Instructor Evaluation:**

- The SIRS Online system will be used for evaluation of PSL 431
- Students are encouraged to submit their opinions of the course and individual instructors at the end of each semester via the [SIRS Online site](#)
- Students must complete the SIRS Online form or indicate within that form that they decline to participate. Otherwise, final grades will be sequestered for 7 days following the course.
- An “Opt Out” option is possible and Student anonymity is carefully protected.

### **Academic Honesty:**

- Article 2.3.3 of the *Academic Freedom Report* states “The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades and professional standards.” In addition, the Department of Physiology adheres to the policies on academic honest as specified in General Student Regulations 1.0, *Protection of Scholarship and Grades*; the all-University Policy on *Integrity of Scholarship and Grades*; and Ordinance 17.00, Examinations.
- **You are expected to complete all quizzes, exams and the final without assistance from any source. Students who violate MSU rules may receive a penalty grade including, but not limited to, a failing grade on the quiz/exam/final or in the course**
- Remember: the course is graded on a curve. If you help your fellow students cheat, you are sabotaging the curve and your own grade. DON'T DO IT.

**Exam Help Sessions:**

- Help Sessions are held prior to each exam and the final. Attendance is OPTIONAL.
- **Sessions are in BPS 1425, 5:00 – 6:30 PM**

Exam	Help Session Date
Exam 1	9/23/16 (FRI)
Exam 2	10/19/16 (WED)
Exam 3	11/4/16 (FRI)
Exam 4	11/21/16 (MON)
Final	12/7/16 (WED)

**Lecture and Recitation Schedule:**

L # = Lecture Number (**Dates in Red are Fridays**)

R # = Recitation Number: lectures from *previous week* may be covered in recitation

Unit	Date	L #	Lecture Title	Reading	Instructor	R #
CELL PHYSIOLOGY	31-Aug	1	Course Intro, Homeostasis & Plasma Membrane	Chapter 1	Leininger	No
	<b>2-Sep</b>	2	Principles of Plasma Membrane Transport	Ch 3 - 3.5	Leininger	Rec.
	5-Sep		Labor Day Break - NO LECTURE			
	7-Sep	3	Membrane Potential and Protein Transport	Ch. 3.6 + 2.3-2.4	Leininger	
	<b>9-Sep</b>	4	Receptors	Ch. 4.5 - 4.7	Leininger	1
	12-Sep	5	Epithelial Cells	pg 6, 74-75, TBD	Leininger	
	14-Sep	6	Neurons: Structure and Excitability	Ch. 4 - 4.3	Leininger	2
	<b>16-Sep</b>	7	Neurons: Synaptic Mechanisms	Ch 4.4	Leininger	
	19-Sep	8	Muscles: Skeletal Muscle & Neuromuscular Junction	Ch 8 - 8.3 + 7.2-7.3	Leininger	
	21-Sep	9	Muscles: Cardiac & Smooth Muscle	Ch 8.6	Leininger	3
NERVOUS SYSTEM	<b>23-Sep</b>	10	Vision	Ch 6.3	Leininger	
	26-Sep		<b>EXAM 1: Covers Lectures 1-9</b>			
	28-Sep	11	Hearing	Ch 6.4	Leininger	4
	<b>30-Sep</b>	12	Intro to Nervous System Structure and Function	Ch 5.1-5.6, 5.8-5.10	Wang	
	3-Oct	13	Reflexes and Sensory pathways	Ch 5.10, Ch 6.1, 6.2	Wang	
	5-Oct	14	Sensory Pathways (continued)	Ch 6.1, 6.2	Wang	5
	<b>7-Oct</b>	15	Somatic Motor Pathways: Reflex and Voluntary	Ch 7.3	Wang	
	10-Oct	16	Autonomic Motor Pathways	Ch 7	Wang	
	12-Oct	17	Autonomic Neuro-Effector Junction	Ch 7	Wang	6
<b>14-Oct</b>	18	Clinical Applications: Receptor Agonists and Antagonists	Handout	Wang		



Unit	Date	L #	Lecture Title	Reading	Instructor	R #	
CIRCULATORY SYSTEM	17-Oct	19	Anatomical Overview of the Circulatory System & Heart	Ch 9.1, 10.1, 11.1, 11.3-11.4	Miksicek	7	
	19-Oct	20	The Flow Equation; Properties of Cardiac Muscle	Ch 9.2, 8.6	Miksicek		
	21-Oct		<b>EXAM 2: Covers Lectures 10-18</b>				
	24-Oct	21	Cardiac Conduction System & Cardiac Electrophysiology	Ch 9.2	Miksicek	8	
	26-Oct	22	ECG and Excitation-Contraction Coupling	Ch 9.2	Miksicek		
	28-Oct	23	The Cardiac Cycle: Systole & Diastole	Ch 9.3	Miksicek		
	31-Oct	24	Cardiac Output and the Frank-Starling Curve	Ch 7.1 & 9.4	Miksicek		
	2-Nov	25	Autonomic Control of the Heart	Ch 7.1 & 9.4	Miksicek		
VASCULAR SYSTEM	4-Nov	26	Arteries: Compliance & Mean Arterial Pressure; Veins: Capacitance & Venous Return	Ch 10.2 & 10.5	Miksicek	9	
	7-Nov		<b>EXAM 3: Covers Lectures 19-25</b>				
	9-Nov	27	Regulation of Peripheral Resistance - Intrinsic Control	Ch 10.3 (352-358)	Miksicek	10	
	11-Nov	28	Regulation of Peripheral Resistance - Extrinsic Control	Ch 10.3 (358-359) and Slides	Miksicek		
	14-Nov	29	Microvasculature & Starling Forces; the Lymphatic System	Ch 10.4, 380-386	Miksicek	11	
	16-Nov	30	Erythrocytes, Oxygen Transport	Ch 11.2, 13.4	Miksicek		
	18-Nov	31	HGB-O <sub>2</sub> Saturation Curve, Bohr Effect, CO Poisoning	Ch 11.2, 13.4	Miksicek		
	RESPIRATORY SYSTEM	21-Nov	32	Anatomy of the Respiratory System	Ch 13.1	Miksicek	No
23-Nov			<b>EXAM 4: Covers Lectures 26 - 31</b>				Rec
25-Nov			Thanksgiving Break - NO CLASS				
28-Nov		33	Lung Mechanics, Respiratory Cycle, Airway Resistance	Ch 13.2: 450-456	Miksicek	12	
30-Nov		34	Spirometry and the Static Lung Volumes	Ch 13.2: 460-462	Miksicek		
2-Dec		35	Expanding & Collapsing Forces; Inefficiencies of Breathing	Ch 13.2: 458-466	Miksicek		
5-Dec		36	Alveolar Ventilation, P O <sub>2</sub> / P CO <sub>2</sub> , and Gas Exchange	Ch 13.3	Miksicek	13	
7-Dec		37	CO <sub>2</sub> and Bicarbonate Transport, Resp. Acid-Base Balance	476-478, Suppl Slides	Miksicek		
9-Dec		38	Control of Respiration, Chemoreceptors	Ch 13.5	Miksicek		
12-Dec			<b>FINAL EXAM, 12:45-2:45 PM: Covers Lectures 32 - 38b + Cumulative Material</b>				