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

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

Textbook: Human Physiology: From Cells to Systems, by Lauralee Sherwood, Cengage Publishing; 9th edition. ISBN 978-1305748880

- This is a soft-cover textbook that is bundled with access to MindTap.
- MindTap includes access to a digital version of the text (if you prefer reading on a screen) as well as other *optional* learning resources that you may find useful.
- Two copies of the 8th edition of the text have been placed on "assigned reading" reserve in the Main Library (2nd Floor W.)

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 Leinninger, Ph.D. *(& Course Coordinator)*	884-5123	leinning@msu.edu	3183 BPS	M&T, 10-11AM or by appt
Hongbing Wang, Ph.D.	884-5119	wangho@msu.edu	3179 BPS	T&Th, 1-2PM
Richard Miksicek, Ph.D.	884-5120	miksicek@msu.edu	2240B BPS	M&W, 3-4PM or by appt.

TAs & Recitations

Section	Day	Time	Location	TA	Email
1	Tu	10:20 AM-11:10 AM	001 Natural Resources Bldg	Michael Steury	steurymi@msu.edu
2	Tu	11:30-12:20 PM	A158 Plant & Soil Science Bldg		
3	W	10:20 AM-11:10 AM	A148 Plant & Soil Science Bldg		
4	W	10:20 AM-11:10 AM	A158 Plant & Soil Science Bldg	Natalie Pizzimenti	pizzime2@msu.edu
5	W	11:30-12:20 PM	A148 Plant & Soil Science Bldg		
6	W	3:00-3:50 PM	204 Natural Sciences Bldg		
8	Th	12:40-1:30 PM	305 Ernst Bessey Hall	Jonathan Kasper	kasperjo@msu.edu
9	Th	1:50-2:40 PM	118 Farall Ag Eng Hall		
10	Th	6:30-7:20 PM	1420 BPS		

Tutors:

Contact Dr. Leinninger if you are interested in obtaining a tutor.

Important Dates:

- 9/28/15: Drop Deadline with Tuition Refund. No Grade Reported.
- 10/21/15: Drop Deadline, No Tuition Refund Given, No Grade Reported.
- After 10/21/15 a grade will be reported for **all** students registered in the course, regardless of whether they complete the course.

Honors Option (Only for Honors College Students)

Contact Dr. Leinninger no later than September 23rd if you want to complete an Honors Option in PSL-431. Any PSL-431 instructor may supervise an Honors Option, and it will be determined based on the student's interest and discussion with the supervising instructor.

Access Course Materials via D2L

- Access D2L and the folder **FS15-PSL-431-Human Physiology I – ALL SECTIONS for**
    - Lecture Notes
    - Recitation Materials
    - Weekly Practice Questions (optional, but strongly encouraged!)
    - Practice Exams
    - Recorded Lectures
    - Points / Grades

- It is *strongly* recommended that you access the lecture and recitation materials and take notes "in your own words" to facilitate your personal understanding. Lectures and Recitation materials may be in PowerPoint, Microsoft Word or PDF format (depending on instructor).

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 (so you should really work through them ahead of time!!!)

- **Your 2 lowest quiz scores (out of 13) will be dropped. No make-up quizzes will be given.**

Who to Contact If You Have Questions About…

- **Exams and Grading, D2L Issues and Lecture Recordings, Adding, Dropping, Registration Issues:** Contact Dr. Leinninger

- **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. Leinninger PRIOR to attending any other recitation section.** Note: there are no make-up quizzes. If you miss recitation, you get 0 pts on the quiz.

Accommodations for Students with Disabilities:

- It is the responsibility of the student to make arrangements with Dr. Leinninger and/or the RCPD Office (Room 120, Bessey Hall) regarding exam accommodations.

- Contact Dr. Leinninger 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. Leinnigner 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

GRADING

There are 655 points in this class. These come from:

Item	Points	# Questions	Notes	% of Grade
Exam 1	90	30	3 pt per question	14%
Exam 2	90	30	3 pt per question	14%
Exam 3	90	30	3 pt per question	14%
Exam 4	90	30	3 pt per question	14%
Cumulative Final	180	60	3 pt per question	27%
13 Recitation Quizzes	110	5 per quiz	Really 130 pt, but Drop 2 quizzes	17%
Read Syllabus	5			1%
TOTAL POINTS	**655**			

- **Recitation Quizzes** are composed of 5 multiple-choice questions, 2 points each
- **Exams 1 - 4** are each composed of 30 multiple-choice questions, 3 points each
- **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. In general:
    - The top 10-15% of the class will receive 4.0s
    - 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. Leinninger 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. Leinninger 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. Leinninger within 24 hr of the exam. Make-ups will be negotiated solely with Dr. Leinninger.

- 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.

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. Leinninger 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. Leinninger 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

Associate Dean: Lyman Briggs
Jonelle Golding
goldingj@msu.edu

Policy on Overlapping Finals:

- According to University policy you may be eligible to take the final exam at an alternative time **IF** a) You have 2 final exams scheduled at the same time **OR** b) 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. LEINNGER 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. Leinninger 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.

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 Pysiology 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.

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.

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) **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.

6) **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.
   - **Define 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.*

7) **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.

EXAM & REVIEW SCHEDULE: *Review sessions are optional. Exams are mandatory.*

Exam Content			Exam Review (Attendance Optional)	
Topic	**Covered On**	**Exam Date**	**Review Date**	**Location & Time**
CELL PHYSIOLOGY (9 Lectures)	Exam 1 & Final	28-Sep	24-Sep	1425 BPS, 5-6:30 PM
NERVOUS SYSTEM (9 Lectures)	Exam 2 & Final	23-Oct	21-Oct	1425 BPS, 5-6:30 PM
CARDIAC SYSTEM (9 Lectures)	Exam 3 & Final	9-Nov	5-Nov	1425 BPS, 5-6:30 PM
VASCULAR SYSTEM (9 Lectures)	Exam 4 & Final	25-Nov	23-Nov	1425 BPS, 5-6:30 PM
PULMONARY SYSTEM (10 Lectures)	Final	14-Dec	10-Dec	1425 BPS, 5-6:30 PM

LECTURE & RECITATION SCHEDULE:

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

- Note Recitation Grouping; lectures from *previous week* may be covered in recitation

*Italicized items are recorded lessons that will **NOT** be given in lecture, only recorded & posted on D2L*

Date	L #	Lecture Title	Reading	Instructor	R #
2-Sep	1	Course Intro, Homeostasis & Plasma Membrane	Chapter 1	Leinninger	No
4-Sep	2	Principles of Plasma Membrane Transport	Ch 3 - 3.5	Leinninger	Rec.
7-Sep		Labor Day Break - NO LECTURE			
9-Sep	3	Membrane Potential and Protein Transport	Ch. 3.6 + 2.3-2.4	Leinninger	
11-Sep	4	Receptors	Ch. 4.5 - 4.7	Leinninger	1
14-Sep	5	Epithelial Cells	pg 6, 74-75, TBD	Leinninger	
16-Sep	6	Neurons: Strucutre and Excitability	Ch. 4 - 4.3	Leinninger	2
18-Sep	7	Neurons: Syanptic Mechanisms	Ch 4.4	Leinninger	
21-Sep	8	Muscles: Skeletal Muscle & Neuromuscular Junction	Ch 8 - 8.3 + 7.2-7.3	Leinninger	
23-Sep	9	Muscles: Cardiac & Smooth Muscle	Ch 8.6	Leinninger	3
25-Sep	10	Vision	Ch 6.3	Leinninger	
28-Sep		**EXAM 1: Covers Lectures 1-9**			
30-Sep	11	Hearing	Ch 6.4	Leinninger	4
2-Oct	12	Intro to Nervous System Structure and Function	p87-113, Ch 5	Wang	
5-Oct	13	Reflexes and Sensory pathways	Ch 5	Wang	
7-Oct	14	Sensory Pathways (continued)	p181-192, Ch 5	Wang	5
9-Oct	15	Somatic Motor Pathways: Reflex and Voluntary	Ch 7	Wang	
12-Oct	16	Autonomic Motor Pathways	Ch 7	Wang	
14-Oct	17	Autonomic Neuro-Effector Junction	Ch 7	Wang	6
16-Oct	18	Clinical Applications: Receptor Agonists and Antagonists	Handout	Wang	

Date	L #	Lecture Title	Reading	Instructor	R #
19-Oct	19	Overview of the Circulatory System	Ch 9.1, 10.1, 11.1, 11.3-11.4	Miksicek	
21-Oct	20	The Heart as a Pump; The Cardiac Conduction System;	Ch 9.2, 8.6	Miksicek	7
23-Oct		**EXAM 2: Covers Lectures 10-18**			
26-Oct	21	Cardiac Electrophysiology	Ch 9.3	Miksicek	
28-Oct	22	The Cardiac Cycle: Systole & Diastole	Ch 9.2	Miksicek	8
30-Oct	23	Cardiac Output, Stroke Volume and Cardiac Mechanics	Ch 9.3	Miksicek	
2-Nov	24	Autonomic Control of the Heart	Ch 7.1 & 9.4	Miksicek	
Online	*24b*	*Recorded Mini Lecture: Cardiovascular Response to Exercise*	Ch 9.5, Suppl Slides	Miksicek	
Online	*24c*	*Recorded Mini Lecture: Heart Disease, Hypertension*	Ch 9.5, Suppl Slides	Miksicek	
4-Nov	25	Arteries: Compliance & Mean Arterial Pressure; Veins: Capacitance & Venous Return	Ch 10.2, 10.5	Miksicek	9
6-Nov	26	Arterioles Reg. of Peripheral Resistance & Blood Pressure	Ch 10.3	Miksicek	
9-Nov		**EXAM 3: Covers Lectures 19-24c**			
11-Nov	27	Control of the CV System and Barorefelector Reflex	375-380	Miksicek	
13-Nov	28	Microvasculature & Starling Forces; the Lymphatic System	Ch 10.4, 380-386	Miksicek	10
Online	*28b*	*Recorded Mini-Lecture: Hypotension, Shock*	Ch 10.6, Suppl Slides	Miksicek	
16-Nov	29	Composition of Blood; Hemostasis & Clotting Cascade	Ch 11.1-11.4	Miksicek	
Online	*29b*	*Rec. Mini Lecture: Pysical Gas Laws (Important Review)*	Suppl Slides	Miksicek	
18-Nov	30	Erythrocytes, Oxygen Transport	Ch 11.2, 13.4	Miksicek	11
20-Nov	31	HGB-O2 Saturation Curve, Bohr Effect, CO Poisoning	Ch 11.2, 13.4	Miksicek	
23-Nov	32	Anatomy of the Respiratory System	Ch 13.1	Miksicek	No
Online	*32b*	*Recorded Mini Lecture: Histology of the Respiratory Tract*	Suppl Slides	Miksicek	Rec.
25-Nov		**EXAM 4: Covers Lectures 25 - 31**			
27-Nov		Thanksgiving Break - NO CLASS			
30-Nov	33	Pulmonary Mechanics, Resp. Cycle, & Airway Resistance	Ch 13.2: 450-456	Miksicek	
2-Dec	34	Spriometry and the Static Lung Volumes	Ch 13.2: 460-462	Miksicek	
Online	*34b*	*Recorded Mini Lecture on Pulmonary Disease*	Ch 13.2: 457-462	Miksicek	12
4-Dec	35	Expanding & Collapsing Forces; Inefficiencies of Breathing	Ch 13.2: 458-466	Miksicek	
7-Dec	36	Alveolar Ventrilation, P O2 / P CO2, and Gas Exchange	Ch 13.3	Miksicek	
9-Dec	37	CO2 and Bicarbonate Transport, Resp. Acid-Base Balance	476-478, Suppl Slides	Miksicek	13
11-Dec	38	Control of Respiration, Chemoreceptors	Ch 13.5	Miksicek	
	38b	*Recorded Mini Lecture: Respiratory Adaptation*	488-491	Miksicek	
14-Dec		**FINAL EXAM (12:45-2:45 PM): Covers Lectures 32 - 38b + Cumulative Material**			