

Biology 1040: Human Anatomy and Physiology 2—section 1  
3 units  
Bio 1040L: Human Anatomy and Physiology 2 lab—sections 1a, 1b, 1c  
1 unit  
Point Loma Nazarene University  
Spring 2023

<b>instructor:</b>	Dr. Rebecca J. Flietstra		
<b>office:</b>	Rohr Science 182		
<b>e-mail:</b>	RebeccaFlietstra@pointloma.edu	or	rflietst@pointloma.edu
<b>lecture time/location:</b>	Latter 101 MWF: 11:00 a.m.—11:55 a.m.		
<b>laboratory time/location:</b>	Sator Hall 117		
	section 1a: Tu, 7:45 a.m.—10:45 a.m.		
	section 1b: Tu, 10:55 a.m.—1:55 p.m.		
	section 1c: Tu, 2:05 p.m.—5:05 p.m.		
<b>office hours:</b>	MWF: 8:00—9:30 am		1:00—3:00 p.m.

If you have any questions about the material in this course, feel free to stop by during my office hours as listed above. Either set up an appointment or simply drop by. I may also be in my office at other, unscheduled times. If my office hours don't work for your schedule, e-mail or stop by and we can try to find a workable time to talk.

### Course Description: Bio 1040

The second semester of a sequence which examines the human body from an integrated perspective emphasizing the interrelationship of structure and function. Topics include sensory and autonomic nervous system, endocrine system and reproduction, cardiovascular system, immune system, respiratory system, digestive system, and urinary system. 3 units

### Co-requisite: Bio 1040L

This A&P laboratory is a Bio 1040 co-requisite. Students enrolled in Bio 1040 must be enrolled in Bio 1040L, and vice versa. If Bio 1040 is dropped, Bio 1040L must also be dropped. Offered every year. Letter graded. Your grade for Bio 1040 and Bio 1040L will be calculated together and the same grade applied to both. 1 unit

### Pre-requisites:

Successful completion (with a passing grade) of **Bio 1030**, and **Che 1003 or Che 1052** (or their equivalent) is a **prerequisite** to admission to this course. If you failed either one of these, you are not eligible to enroll in Bio 1040. This course is the second of a two-semester sequence where the structure and function of various systems of the body are studied in an integrated fashion. If you did not take Biology 1030 at PLNU, you should see me to be sure that your background is appropriate for this course.

### Student Learning Outcomes:

1. Students will be able to identify the anatomy of, and blood flow through, the mammalian heart.
2. Students will be able to identify major blood vessels of the human and the cat, and the regions supplied by these blood vessels.
3. Students will understand the basic anatomy and physiology of the sensory and autonomic nervous systems, endocrine system, cardiovascular system, immune system, respiratory system, digestive system, and urinary system.
4. Students will be able to describe the symptoms and mechanisms of representative diseases and injuries, and explain how such pathophysiology relates to normal anatomy and physiology.

### Required Texts and Materials:

For each lecture there is an assigned reading. It is recommended that you read through these pages both prior to and following the related lecture. The textbook for this class will be used both semesters of the Human Anatomy and Physiology sequence (Bio 1030 & Bio 1040); the dissection kit is also used both semesters.

- Betts, DeSaix and Johnson, *Anatomy and Physiology* (2<sup>nd</sup> ed.), OpenStax, 2022.

This is available as a free etext or pdf at

<https://openstax.org/details/books/anatomy-and-physiology-2e>

Or you can order a hardcopy of the text by clicking the link on the above page, through the bookstore, or through Amazon.

ISBN-13: 978-1-71149-406-7

The following materials are required for work in various laboratories:

- Dissecting kit (available at bookstore)
- Safety glasses (available in bookstore; also used in chemistry classes)
- Old shirt or coat for dissecting work

For this course you will need to access Canvas:

- Canvas.pointloma.edu

*This website will be your source for many handouts and course activities, including all lecture and laboratory handouts, online quizzes and course exams.*

Evaluation:

**based on an expected 1210+ total points**

**Your grade for Bio 1040 and Bio 1040L will be calculated together and the same grade applied to both.**

**Lecture points: at least 840 points**

- 1) 5 non-cumulative exams (100 points/exam) = 500 points
- 2) 6 in-class quizzes (15 points/quiz) = 90 points
- 3) 20-25 on-line quizzes (5 points/quiz) = 100-125 points
- 3) one final, cumulative exam = 150 points
- 4) up to 50 points possible from unannounced in-class assignments

**Laboratory points: 360 points**

- 1) 12 lab quizzes (10 points/quiz + 10 points) = 130 points
- 2) 7 lab exercises (20 points/exercise) = 140 points
- 3) circulatory system lab practical = 100 points

**Your letter grade will be determined from your cumulative percent score as follows:**

<b>A:</b> 93.0—100%	<b>B-:</b> 80.0—82.99	<b>D+:</b> 67.0—69.99
<b>A-:</b> 90.0—92.99	<b>C+:</b> 77.0—79.99	<b>D:</b> 63.0—66.99
<b>B+:</b> 87.0—89.99	<b>C:</b> 73.0—76.99	<b>D-:</b> 60.0—62.99
<b>B:</b> 83.0—86.99	<b>C-:</b> 70.0—72.99	<b>F:</b> ≤ 59.99

Extra Credit:

**45 points**—Although you only need to take six quizzes for class credit, up to nine quizzes (each worth 15 points) will be administered during the semester. When calculating your grades, every third quiz will be considered “extra credit”, as reflected in your cumulative score. By taking all of the quizzes (and doing well), you could potentially earn 135 points out of 90 points.

Lecture Participation:

Taking Notes:

For each topical section I will make an outline available on Canvas (canvas.pointloma.edu) at least two days prior to the first lecture for that topic. If possible, save a tree by printing these outlines as double-sided copies.

Studying:

In the interest of providing sufficient time to accomplish the stated Course Learning Outcomes, this class (lecture and lab) meets the PLNU credit hour policy for a 4 unit class delivered over 15 weeks. It is highly anticipated that students will spend a minimum of 37.5 participating hours per credit hour on their coursework. For this course, students will spend an estimated 150 total hours meeting the course learning outcomes. Since Bio 1040 + Bio 1040L are worth four credits, **you should be studying at least 10 hours every single week**—

and not just the week prior to an exam or practical. This studying should also be spread out during each week, not simply occurring before Friday's quiz. While studying includes reading the assigned text, you should concentrate on the lecture material presented in class. Make sure that you not only **memorize** the information, but that you also **understand** the material.

### Tutoring:

Tutors have been assigned to this class and they are available for individual and group tutoring. You can sign up for individual tutoring at <https://www.pointloma.edu/offices/tutorial-services> Use this link to sign in with Brainfuse, the program the Tutorial Center uses to schedule tutoring sessions. Review sessions will be held on Wednesdays; the times and locations of these review sessions will be announced in class.

### On-Line Quizzes:

Most Mondays and Wednesdays of this semester you will need to take a simple 5-point on-line quiz. This quiz is intended to help you keep up with all the material we are covering in class. Each quiz may cover material from the day's lecture, previous material, and even some textbook material that will not be covered in class (but may be covered on quizzes and exams).

Each quiz will be available from noon of Monday or Wednesday to 7:59 a.m. the next morning. The correct answers will be posted at 8:00 a.m. of that next morning. **BECAUSE THESE QUIZZES ARE WORTH ONLY 5 POINTS AND THE ANSWERS ARE POSTED IMMEDIATELY AFTER THE DUE DATE, THESE QUIZZES CANNOT BE RESCHEDULED FOR ANY REASON.**

Although each quiz is open book, it is highly recommended that you read the chapter associated with the day's lecture ahead of time. Indeed, you will be better able to learn the material if these quizzes you first study the material, then try to take the quiz without referring to your notes or textbook.

Feel free to take notes while you take these quizzes, but please **DO NOT** copy down questions and their answers, and **DO NOT** share answers with other members of the class. These quizzes are intended to help you and your classmates learn the material, so please do not undermine this goal by cheating.

### In-Class Quizzes:

On the Fridays that do not have an exam, a **15-point quiz** will be administered at the start of class. These quizzes will consist of short answer and essay questions. The material covered by each quiz will be announced on the previous Wednesday. For each quiz, **10-12 points** will cover new material and **3-5 points** will cover previously studied material. These quizzes have a time limit, so if you are late for class, you will have less time. These quizzes are **not** intended to give you "easy points," but are designed to help **focus your studying**. In general, these quizzes will be returned and discussed on the following Monday.

### Exams:

The dates on which exams will be administered are indicated in the lecture schedule below. Exams can only be rescheduled with advance notice and with a valid reason, such as illness (requiring a signed statement from a physician) or a school-related activity (requiring prior notification from the administration and the student).

**The final cannot be rescheduled. This semester the final will be given on Monday, May 2, 10:30 a.m.—1:00 p.m.**

- Lecture exams will cover the material given in class as indicated in the syllabus.
- Each exam will be composed of 40 multiple-choice questions (80 pts total) and 20 points of short answer/essay questions.

Exams will be administered on Canvas, using Honorlock. You will need to take your laptop to class for each exam. Unless given special permission (such as taking the exam through the EAC), you will not receive credit for an exam taken remotely.

### Laptop Policy:

On occasion, we will use laptop computers in the lab. In the classroom, however, laptops tend to interfere with your education and can serve as a distraction for your neighbors. Numerous studies (some highlighted here)

have confirmed that classroom laptop use can be detrimental to learning. For this reason, I do not allow the use of laptops or other electronic devices in the classroom, with the exception of exams.

1. Laptops and other electronic devices enable more than just note-taking, introducing numerous distractions (web-surfing, homework for other classes, social media, etc.) for you and your neighbors. You may think that you can multitask, but studies show you can't.  
[http://www.slate.com/articles/health\\_and\\_science/science/2013/05/multitasking\\_while\\_studying\\_divided\\_attention\\_and\\_technological\\_gadgets.html](http://www.slate.com/articles/health_and_science/science/2013/05/multitasking_while_studying_divided_attention_and_technological_gadgets.html)
2. As already mentioned, using your laptop in class can be less than neighborly. Your classmates' grades can also suffer due to the distracting pull of the laptop.  
<https://www.sciencedirect.com/science/article/pii/S0360131512002254>
3. Writing is a more effective way of learning material than is typing. With typing, each letter is pretty much the same thing for the brain. Writing, however, uses different muscle groups with each word and encourages the brain to integrate material during the writing process. Typing may be easy and fast, but by making the brain passive, it discourages learning.  
<https://www.npr.org/2016/04/17/474525392/attention-students-put-your-laptops-away>
4. Using electronic devices in class also impairs long-term retention, with one study suggesting that cellphone use in class can lower one's grade by half a letter grade.  
<https://www.insidehighered.com/news/2018/07/27/class-cellphone-and-laptop-use-lowers-exam-scores-new-study-shows>

### Laboratory Participation:

#### Attendance:

**Attendance is mandatory.** You must stay for the **entire scheduled laboratory period** unless dismissed by the instructor. If you do not attend or fail to complete the scheduled laboratory, you will not receive any credit for that particular lab. This penalty also applies to the dissection labs. Individuals who do not fully participate in the dissection labs will have 25 points subtracted from their lab practical score for each laboratory dissection period missed. If participation in a school-sponsored activity or illness prevents you from attending your scheduled lab section during a particular week you *might* be able to attend another lab section during that same week. Such a switch requires the **prior** permission of the lab instructor and should not be viewed as an automatic privilege.

#### Laboratory Handouts:

Prepare for the laboratory exercise by reading the materials supplied ahead of time. Laboratory exercises will be posted on Canvas (canvas.pointloma.edu) at least one week prior to the lab. If possible, save a tree by printing these lab hand-outs as double-sided copies.

#### Textbook and Lecture Notes:

The lab exercises and write-up often refer to material found in your textbook and in the lecture notes. Both sources, therefore, should be brought to lab each week.

#### Laboratory Quizzes:

As indicated on the lab schedule, quizzes will be administered at the start of most laboratory sections. If you are late for lab, you will not be given the opportunity to take any missed quiz.

#### Circulatory System Practical:

The circulatory system laboratory practical is scheduled for **Tuesday, February 28** and will be administered in the one-hour blocks during normal school hours. Prior to the exam, you will be asked to indicate which time(s) are amenable to your schedule. If you anticipate conflicts, please do your best to clear them prior to the circulatory system labs. The circulatory system laboratory practical will be worth **100 points**.

## Laboratory Assignments:

Laboratory assignments will be due at the end of the lab period. You **cannot** hand in a laboratory write-up for a lab you did not attend. It is important that you recognize that these laboratory write-ups must **reflect your own work**, and not someone else's. This means that you can—and should—discuss the assignment with your classmates, but that you cannot copy their answers. Students who hand in identical assignments will not be given any credit for that particular assignment.

## Laboratory Safety and Clean-Up:

**No food (including gum) or water in the laboratory.**

**Keep all backpacks and other personal materials either on the lab bench (if there is room) or completely under the lab bench, such that no one could possibly trip over these items.**

**Enclosed shoes are mandatory. Open-toed shoes, clogs, backless shoes, or sandals are not permitted. You also cannot wear shoes that expose the top of the foot.**

At the end of each laboratory period make sure that your table, and the equipment you've used, has been **cleaned and returned** to its appropriate place. Points are deducted for messes not cleaned up.

## Cranial Nerves

I	Olfactory	Sensory	smell
II	Optic	Sensory	vision
III	Oculomotor	Motor	contracts medial rectus, superior rectus, inferior rectus, and inferior oblique (extrinsic eye muscles) raises eyelid
		Parasympathetic	contracts intrinsic muscles of eye for near vision and pupil constriction
IV	Trochlear	Motor	contracts superior oblique (extrinsic eye muscle)
V	Trigeminal	Sensory	touch from face/upper cranium
		Motor	moves mandible (chewing; speech)
VI	Abducens	Motor	contracts lateral rectus (extrinsic eye muscle)
VII	Facial	Sensory	taste from the anterior 2/3 of tongue
		Motor	facial expression
		Parasympathetic	stimulates salivary glands and lacrimal glands
VIII	Vestibulocochlear	Sensory	hearing detects position/movement of the head for balance
		Sensory	taste from the posterior 1/3 of tongue
IX	Glossopharyngeal	Motor	swallowing
		Parasympathetic	stimulates salivary glands
		Sensory	taste; sensory from thoracic & abdominal organs
X	Vagus	Motor	tongue and throat
		Parasympathetic	decreases heart rate; increases digestion
		Motor	contracts sternocleidomastoid and trapezius
XI	Accessory	Motor	contracts sternocleidomastoid and trapezius
XII	Hypoglossal	Motor	contracts extrinsic and intrinsic muscles of tongue

## Other Academic Issues:

### PLNU COPYRIGHT POLICY

Point Loma Nazarene University, as a non-profit educational institution, is entitled by law to use materials protected by the US Copyright Act for classroom education. Any use of those materials outside the class may violate the law.

### PLNU ACADEMIC HONESTY POLICY

Students should demonstrate academic honesty by doing original work and by giving appropriate credit to the ideas of others. Academic dishonesty is the act of presenting information, ideas, and/or concepts as one's own when in reality they are the results of another person's creativity and effort. A faculty member who believes a situation involving academic dishonesty has been detected may assign a failing grade for that assignment or examination, or, depending on the seriousness of the offense, for the course. Faculty should follow and students may appeal using the procedure in the university Catalog. See [Academic Policies](#) for definitions of kinds of academic dishonesty and for further policy information.

The laboratory portion of the course has two practical exams. Since these exams are administered in the lab, they cannot be given to the entire class at once, but must instead be given to smaller groups of students at separate times. Any discussion of the content of the exam between a student who has taken the practical exam with another student who has yet to take the exam will be considered to be cheating on the part of both students, and dealt with as described above.

### PLNU ACADEMIC ACCOMMODATIONS POLICY

PLNU is committed to providing equal opportunity for participation in all its programs, services, and activities. Students with disabilities may request course-related accommodations by contacting the Educational Access Center (EAC), located in the Bond Academic Center ([EAC@pointloma.edu](mailto:EAC@pointloma.edu) or 619-849-2486). Once a student's eligibility for an accommodation has been determined, the EAC will issue an academic accommodation plan ("AP") to all faculty who teach courses in which the student is enrolled each semester.

PLNU highly recommends that students speak with their professors during the first two weeks of each semester/term about the implementation of their AP in that particular course and/or if they do not wish to utilize some or all of the elements of their AP in that course.

Students who need accommodations for a disability should contact the EAC as early as possible (i.e., ideally before the beginning of the semester) to assure appropriate accommodations can be provided. It is the student's responsibility to make the first contact with the EAC.

### PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions, the faculty member will issue a written warning of de-enrollment. If the absences exceed 20 percent, the student may be de-enrolled without notice until the university drop date or, after that date, receive the appropriate grade for their work and participation.

### SEXUAL MISCONDUCT AND DISCRIMINATION

Point Loma Nazarene University faculty are committed to helping create a safe learning environment for all students. If you (or someone you know) have experienced any form of sexual discrimination or misconduct, including sexual assault, dating or domestic violence, or stalking, know that help and support are available through the Title IX Office at [pointloma.edu/Title-IX](http://pointloma.edu/Title-IX). Please be aware that under Title IX of the Education Amendments of 1972, it is required to disclose information about such misconduct to the Title IX Office.

If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact Counseling Services at [counselingservices@pointloma.edu](mailto:counselingservices@pointloma.edu) or find a list of campus pastors at [pointloma.edu/title-ix](http://pointloma.edu/title-ix)

**To Teach ~ To Shape ~ To Send** Point Loma Nazarene University exists to provide higher education in a vital Christian community where minds are engaged and challenged, character is modeled and formed, and service becomes an expression of faith. Being of Wesleyan heritage, we aspire to be a learning community where grace is foundational, truth is pursued, and holiness is a way of life.

Topic 1	Nervous System	Topic 5	Respiratory System
Topic 2	Endocrine System	Topic 6	Digestive System
Topic 3	Cardiovascular System	Topic 7	Urinary System
Topic 4	Immune System	Topic 8	Diabetes Mellitus

## Tentative Lecture Schedule

<b>Jan 10 (Tu)</b>	Sensory Receptors; Spinal Reflexes <i>nervous system (452-457); neurons (459); spinal cord (509-510)</i>	chp. 14 pp. 539-542, 577-578
<b>On Your Own</b>	Categorizations of Sensory Receptors	
<b>Jan 11 (W)</b>	Autonomic Nervous System <i>brain divisions (500-508); cranial nerves (522-525); spinal cord (509-510)</i>	chp. 15 pp. 589-620
<b>Jan 13 (F)</b>	Chemical Senses: Gustation and Olfaction <i>cranial nerves (522-525)</i>	chp. 14 pp. 542-546
<b>Jan 16 (M)</b>	<b>Martin Luther King Day</b>	
<b>Jan 18 (W)</b>	Visual System <i>cranial nerves (522-525); motor units (373-374)</i>	chp. 14 pp. 552-558
<b>Jan 20 (F)</b>	Visual System <i>cranial nerves (522-525)</i>	chp. 14 pp. 552-558
<b>Jan 23 (M)</b>	Ear Anatomy <i>cranial nerves (522-525)</i>	chp. 14 pp. 546-551
<b>Jan 25 (W)</b>	Inner Ear Function: Hearing & Proprioception <i>cranial nerves (522-525)</i>	chp. 14 pp. 546-551
<b>Jan 27 (F)</b>	<b>EXAM 1</b> <i>Covers lecture material, on your own material and cranial nerves 1/11—1/24</i>	
<b>Jan 30 (M)</b>	Overview of Endocrine System <i>exocytosis (90); glands (137-140)</i>	chp. 17 pp. 661-673
<b>Feb 1 (W)</b>	Pituitary and Hypothalamus <i>diencephalon (504-506)</i>	chp. 17 pp. 673-680
<b>Feb 3 (F)</b>	Other Endocrine Glands <i>Ca<sup>++</sup> homeostasis (217-220); sympathetic nervous system (590-593)</i>	chp. 17 pp. 680-692
<b>Feb 6 (M)</b>	Male Reproductive System <i>steroids (67-68); pituitary and hypothalamus (673-674)</i>	chp. 3 pp. 107-121 chp. 27 pp. 1186-1196
<b>Feb 8 (W)</b>	Female Reproductive System <i>steroids (67-68); pituitary and hypothalamus (673-674)</i>	chp. 27 pp. 1196-1212
<b>Feb 10 (F)</b>	<b>EXAM 2</b> <i>Covers lecture material 1/26—2/7</i>	
<b>Feb 13 (M)</b>	Heart Anatomy and Histology <i>membrane junctions (132); serous membrane (129-130); skeletal muscle fibers (359-369)</i>	chp. 19 pp. 751-767
<b>Feb 15 (W)</b>	Cardiac Cycle & Heart Electrical Properties <i>action potentials and skeletal muscle (473-475)</i>	chp. 19 pp. 772-787
<b>Feb 17 (F)</b>	Regulation of Cardiac Output <i>autonomic nervous system (589-620)</i>	chp. 19 pp. 788-799
<b>Feb 20 (M)</b>	Blood Vessels <i>histology (139-140)</i>	chp. 20 pp. 810-820
<b>Feb 22 (W)</b>	Blood Flow and Blood Pressure <i>reflex arc (599)</i>	chp. 20 pp. 821-830
<b>Feb 24 (F)</b>	<b>EXAM 3</b> <i>Covers lecture material 2/9—2/21</i>	
<b>Feb 27 (M)</b>	<b>Free Day</b>	
<b>Feb 28 (Tu)</b>	<b>Lab Practical Exam—all sections</b>	

<b>Mar 1 (W)</b>	Blood <i>osmosis (86-87); bone marrow (194, 197)</i>	chp. 18 pp. 711-743
<b>Mar 3 (F)</b>	Blood <i>bone marrow (194, 197)</i>	chp. 18 pp. 711-743
<b>March 6-10</b>	<b>Spring Break</b>	
<b>Mar 13 (M)</b>	Lymphatic System <i>osmosis (86-87)</i>	chp. 20 pp. 830-832 chp. 21 pp. 894-905
<b>Mar 15 (W)</b>	Innate Immunity <i>plasma membrane (82-84); phagocytosis (89); skin (164-167); hypothalamus (505-506)</i>	chp. 21 pp. 905-912
<b>Mar 17 (F)</b>	Adaptive Immunity <i>blood grouping &amp; typing (739-743)</i>	chp. 21 pp. 912-934
<b>Mar 20 (M)</b>	Respiratory System Anatomy & Volumes <i>epithelial tissues &amp; glands (130-140); cartilage (145-146); olfaction (544-545); autonomic nervous system (589-620)</i>	chp. 22 pp. 947-961, 965-967
<b>On Your Own</b>	<b>Pulmonary Air Volumes and Capacities</b>	
<b>Mar 22 (W)</b>	Ventilation <i>inflammation (910-911); autonomic nervous system (589-620); pH (58-60); reflex arcs (599)</i>	chp. 22 pp. 961-970
<b>Mar 24 (F)</b>	<b>Exam 4</b> Covers lecture and on your own material 2/23-3/21	
<b>Mar 27 (M)</b>	Gas Exchange, O <sub>2</sub> transport <i>hemoglobin (722)</i>	chp. 22 pp. 970-979
<b>Mar 29 (W)</b>	CO <sub>2</sub> , Respiratory Pathologies <i>pH (58-60)</i>	chp. 22 pp. 979-983
<b>Mar 31 (F)</b>	Digestive Processes; GI Anatomy <i>exocrine &amp; endocrine glands (137-140); serous membranes (129-130)</i>	chp. 23 pp. 995-1047
<b>Apr 3 (M)</b>	Accessory Digestive Organs and Digestion <i>exocrine &amp; endocrine glands (137-140); enzymes (54); pH (58-60); organic molecules (61-74);</i>	chp. 23 pp. 995-1047
<b>Apr 5 (W)</b>	Large Intestines; GI Pathologies <i>osmosis and tonicity (86-87)</i>	chp. 23 pp. 995-1047
<b>Apr 7 (F)</b>	<b>Easter Break</b>	
<b>Apr 10 (M)</b>	<b>Easter Break</b>	
<b>Apr 12 (W)</b>	Urinary System Anatomy <i>membrane transport (84-90); capillaries (814-816)</i>	chp. 25 pp. 1109-1125
<b>Apr 14 (F)</b>	<b>Exam 5</b> Covers lecture material 3/23-4/8	
<b>Apr 17 (M)</b>	Urine Production <i>osmosis (86-87); capillaries (814-816)</i>	chp. 25 pp. 1119-1146
<b>Apr 19 (W)</b>	Regulation of Urine and Body Fluid <i>posterior pituitary (675-676); adrenal cortex (688-689)</i>	chp. 25 pp. 1119-1146
<b>Apr 21 (F)</b>	Regulation of MAP and Urine Volume	chp. 26 pp. 1119-1146
<b>Apr 24 (M)</b>	Water Balance; pH Balance <i>pH (58-60); control of respiration (967-969)</i>	chp. 26 pp. 1155-1179
<b>Apr 26 (W)</b>	Pancreas and Diabetes Mellitus <i>pH (58-60); carbohydrates (62-65); oxygen transport (975-979); control of respiration (967-969); tubular reabsorption (1128-1133)</i>	chp. 17 pp. 693-697
<b>Apr 28 (F)</b>	Quiz only	
<b>May 3 (W)</b>	<b>FINAL EXAM</b> <b>10:30am—1:00pm</b>	

## Laboratory Schedule for Bio 1040, Spring 2023

<b>Week of:</b>	<b>Lab Exercise</b>	<b>Quiz</b>
<b>Jan. 9-13</b>	NO LAB	
<b>Jan. 16-20</b>	Reflexes, Sensory Receptors, and Cranial Nerves	<i>cranial nerves</i>
<b>Jan. 23-27</b>	Special Senses	<i>reflexes, sensory receptors, and cranial nerves</i>
<b>Jan 30-Feb 3</b>	Circulatory System Anatomy: Sheep Heart Cat Veins	<i>special senses</i>
<b>Feb. 6-10</b>	Circulatory System Anatomy: Cat Thoracic Arteries Human Heart Model	<i>sheep heart &amp; cat veins</i>
<b>Feb. 13-17</b>	Circulatory System Anatomy: Cat Abdominal Arteries Cat Organs Human Cerebral Arteries	<b>14 pt quiz:</b> <i>cat thoracic arteries, human heart model &amp; review (sheep heart and cat veins)</i>
<b>Feb. 20-24</b>	Circulatory System Anatomy: Review	<b>16 pt quiz:</b> <i>cat organs &amp; abdominal arteries, human arteries of neck and head, &amp; review</i>
<b>Feb 27-Mar 3</b>	<b>Laboratory Exam: Cardiovascular Practical Tuesday, February 28 for all sections</b> No Regularly Scheduled Laboratory Sections	
<b>Mar. 6-10</b>	<b>NO LAB—Spring Break</b>	
<b>Mar. 13-17</b>	Cardiovascular Physiology	<i>blood pressure</i>
<b>Mar. 20-24</b>	Diagnostic Blood Tests	<i>cardiovascular physiology</i>
<b>Mar. 27-31</b>	Respiratory Physiology & Blood Typing	<i>diagnostic blood tests</i>
<b>Apr. 3-7</b>	<b>NO LAB—Easter Break</b>	
<b>Apr. 10-14</b>	Osmosis and Tonicity	<i>respiratory physiology &amp; blood typing</i>
<b>Apr. 17-21</b>	Urinalysis	<i>osmosis and tonicity</i>
<b>Apr. 24-28</b>	NO LAB	