Bio 1030: Human Anatomy and Physiology 1

section 1

3 units

Bio 1030L: Human Anatomy and Physiology 1 lab

sections 1a, 1b, 1c

1 unit

Point Loma Nazarene University

Fall 2020

Online

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lecture time:	MWF: 11:00 a.m.—11:55 p.m. PT
laboratory time:	section 1a: Tu, 7:45 a.m.—10:45 a.m. PT
	section 1b: Tu, 10:55 a.m.—1:55 p.m. PT
	section 1c: Tu, 2:05 p.m.—5:05 p.m. PT
office hours (Zoom):	MWTh: 1:00—3:00 PT

If you have any questions about the material in this course, feel free to participate in the Zoom office hours or to contact me via email.

Course Description: Bio 1030

The first course of a two-semester sequence which examines the human body from an integrated perspective. Topics include an introduction to chemistry and cell function, tissue types, skeletal system, muscular system, and nervous system. 3 units

Co-requisite: Bio 1030L

This anatomy and physiology laboratory is a co-requisite for Bio 1030. Students enrolled in Bio 1030 must be enrolled in Bio 1030L, and vice versa. If Bio 1030 is dropped, Bio 1030L must also be dropped. Offered every year. Letter graded. Your grade for Bio 1030 and Bio 1030L will be calculated together and the same grade applied to both. 1 unit

Pre-requisite or Co-requisite: Che 1003 or Che 1052

The college catalog specifically states that a **pre-** or **co-requisite** for this course is one semester of college level chemistry (such as **Che 1003** or **Che 1052**). If you are in doubt about whether you meet this requirement, please talk to me. Students who do not have evidence of prior completion or current enrollment in an appropriate chemistry class will be de-enrolled from this course.

Student Learning Outcomes:

1. You will be able to describe cell structure and function, and explain the underlying chemical principles that determine cellular anatomy and physiology.
2. You will be able to identify body tissues, their functions, and common locations.
3. You will be able to identify the bones of the human body and their major structures.
4. You will be able to identify key muscles of the human and of the cat; and the attachments, innervation, and associated movements of the human muscles.
5. You will understand the basic anatomy and physiology of bones, skeletal muscle, and the central nervous system.
6. You 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.

- Amerman, *Human Anatomy and Physiology* (2nd ed.), Pearson, 2019.
  Bundled with *Mastering A&P*

If we move to campus during the semester, the following materials are required for work in various laboratories. You can wait to purchase these items until we return to campus. Dissection kits are used in the spring for Bio 1040, so if you've already purchased a dissection kit you can keep it until then:

- Dissecting kit (available at bookstore)
- Old shirt or coat for dissecting work

For this course you will need to access two websites:

- Canvas.pointloma.edu
  This website will be your source for all lecture and laboratory handouts.
- www.masteringaandp.com
  This website is available through your textbook—either included in the price of a new textbook, or a separate purchase with a used textbook. This website will serve as a resource for images and study guides, as well as the site you will use to access on-line quizzes.

Recommended Materials

These two items are for sale at the bookstore and may be helpful for learning the anatomical material this semester and next semester.

- Krieger, A Visual Analogy Guide to Human Anatomy & Physiology, Morton, 2013
- Hansen, *Netter's Anatomy Coloring Book*, Elsevier, 2010.

Evaluation:

Based on an expected <u>1200+ total points</u>

Because of extra credit and other issues, your grade on Canvas might not necessarily be your exact grade for the course. Thus, following each exam, I will provide an update on the total points you have earned up until that point, along with the total possible points.

Your grade for Bio 1030 and Bio 1030L will be calculated together and the same grade applied to both.

Lecture points: **885+ points**

1) Honorlock practice quiz = 5 points
2) 5 non-cumulative exams (100 points/exam) = 500 points
3) 6 quizzes (15 points/quiz) = 90 points
4) 20-25 MAP quizzes (5 points/quiz) = 100-125 points
5) one final, cumulative exam = 150 points
6) online participation in lectures = 40 points
7) up to 100 points possible from additional assignments or quizzes

Laboratory points: **315 points**

1) 7 lab quizzes (10 points/quiz) = 70 points
2) introductory video = 5 points
3) 2 lab exercises (20 points/exercise) = 40 points
4) skeleton practical exam = 75 points
5) muscle practical exam = 125 points

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

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

Extra Credit:

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. This is the only extra credit offered during the semester.

Lecture Participation:

Lecture Formats:

Monday lectures will be delivered live (synchronously) via Zoom. The links will be available through Canvas. Wednesday and Friday lectures will be delivered as YouTube videos (each lecture posted in two parts), links available in Canvas.

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 meets the PLNU credit hour policy for a 4 unit class delivered over 15 weeks. It is anticipated that students will spend a minimum of 37.5 participation hours per credit hour on their coursework. For this course, students will spend an estimated 150 total hours meeting the course learning outcomes. The time estimations are provided in the Canvas modules.

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. Further details about tutoring will announced in class once they have been determined.

On-Line Quizzes:

Unless you've purchased a different edition, your textbook comes with a free, 2-year access to Mastering A&P. If you are using a different version of the text, you will need to purchase this separately (MasteringAandP.com; choose Amerman, Human Anatomy & Physiology, 2e). This website will be used both semesters in all sections of Bio 1030/Bio 1040.

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.

For this semester, use the following to identify and correctly log-in to the site:

textbook	Amerman, Human Anatomy @ Physiology, 2e
course name	Bio 1030 sec 1 PLNU 2020
course ID	flietstra33942

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 online 11:00—11:20 a.m. Quizzes will be taken on Canvas using Honorlock. Please read through the Honorlock guidelines posted in Canvas. Of particular note, when taking a quiz or exam using Honorlock you must:

- •use a computer or laptop with a camera; phones and tablets will not work with Honorlock
- •be alone in a quiet room
- •sit at a cleared desk or table
- •close all other programs on the computer or laptop

To assist you with learning how to correctly use Honorlock, a practice quiz will be administered on Thursday, August 20.

In class quizzes will consist of short answer and essay questions. The material to be 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 start the quiz late, 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**.

- •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.

As with the quizzes, exams will also be taken on Canvas using Honorlock. Please read through the Honorlock guidelines posted in Canvas. Of particular note, when taking a quiz or exam using Honorlock you must:

- •use a computer or laptop with a camera; phones and tablets will not work with Honorlock
- •be alone in a quiet room
- •sit at a cleared desk or table
- •close all other programs on the computer or laptop

Laboratory Participation:

Attendance:

Attendance is mandatory. Labs will sometimes be synchronous and sometimes asynchronous. On Mondays I will let you know what to expect about the week's lab in the "week overview".

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. When downloading documents from Canvas it often works better to use *Chrome* rather than *Internet Explorer*. 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. You will take these quizzes via Honorlock in Canvas. Even if the rest of the lab is asynchronous, these quizzes are offered at a set time, so make sure you are available at that time to take the quiz.

Laboratory Assignments:

Laboratory assignments will be due as indicated in Canvas.

Other Academic Issues:

STATE AUTHORIZATION
State authorization is a formal determination by a state that Point Loma Nazarene University is approved to conduct activities regulated by that state. In certain states outside California, Point Loma Nazarene University is not authorized to enroll online (distance education) students. If a student moves to another state after admission to the program and/or enrollment in an online course, continuation within the program and/or course will depend on whether Point Loma Nazarene University is authorized to offer distance education courses in that state. It is the student's responsibility to notify the institution of any change in his or her physical location. Refer to the map on State Authorization to view which states allow online (distance education) outside of California.

INCOMPLETES AND LATE ASSIGNMENTS
All assignments are to be submitted/turned in by the beginning of the class session when they are due—including assignments posted in Canvas. Incompletes will only be assigned in extremely unusual circumstances.

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.

PLNU ACADEMIC ACCOMMODATIONS POLICY
While all students are expected to meet the minimum standards for completion of this course as established by the instructor, students with disabilities may require academic adjustments, modifications or auxiliary aids/services. At Point Loma Nazarene University (PLNU), these students are requested to register with the Disability Resource Center (DRC), located in the Bond Academic Center (DRC@pointloma.edu or 619-849-2486). The DRC's policies and procedures for assisting such students in the development of an appropriate academic adjustment plan (AP) allows PLNU to comply with Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. Section 504 prohibits discrimination against students with special needs and guarantees all qualified students equal access to and benefits of PLNU programs and activities. After the student files the required documentation, the DRC, in conjunction with the student, will develop an AP to meet that student's specific learning needs. The DRC will thereafter email the student's AP to all faculty who teach courses in which the student is enrolled each semester. The AP must be implemented in all such courses.
If students do not wish to avail themselves of some or all of the elements of their AP in a particular course, it is the responsibility of those students to notify their professor in that

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.

course. PLNU highly recommends that DRC students speak with their professors during the first two weeks of each semester about the applicability of their AP in that particular course and/or if they do not desire to take advantage of some or all of the elements of their AP in that course.

PLNU ATTENDANCE AND PARTICIPATION POLICY

Regular and punctual attendance at all **synchronous** class sessions is considered essential to optimum academic achievement. If the student is absent for more than 10 percent of class sessions (virtual or face-to-face), 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. In some courses, a portion of the credit hour content will be delivered **asynchronously** and attendance will be determined by submitting the assignments by the posted due dates. See Academic Policies in the Undergraduate Academic Catalog. If absences exceed these limits but are due to university excused health issues, an exception will be granted. **Asynchronous Attendance/Participation Definition**
A day of attendance in asynchronous content is determined as contributing a substantive note, assignment, discussion, or submission by the posted due date. Failure to meet these standards will result in an absence for that day. Instructors will determine how many asynchronous attendance days are required each week.

SPIRITUAL CARE

Please be aware PLNU strives to be a place where you grow as whole persons. To this end, we provide resources for our students to encounter God and grow in their Christian faith. If students have questions, a desire to meet with the chaplain or have prayer requests you can contact the Office of Spiritual Development

USE OF TECHNOLOGY

In order to be successful in the online environment, you'll need to meet the minimum technology and system requirements; please refer to the *Technology and System Requirements* information. Additionally, students are required to have headphone speakers compatible with their computer available to use. If a student is in need of technological resources please contact student-tech-request@pointloma.edu.
Problems with technology do not relieve you of the responsibility of participating, turning in your assignments, or completing your class work.

Tentative Lecture Schedule		
Aug 17 (M)	Introduction to Anatomy and Physiology Elements and Atoms	chp. 1: pp. 7-27 chp. 2: pp. 31-34
On Your Own	Anatomical Terms	
Aug 19(W)	Chemical Bonds and Reactions; pH	chp. 2: pp. 34-50
Aug 20 (Th)	*practice Honorlock quiz online* *available 7:00am—4:00pm*	
Aug 21 (F)	Solutions, Cytoplasm, Diffusion & Osmosis	chp. 2: pp. 34-35 chp. 3: pp. 69, 74-82, 96-100

Aug 24 (M)	Organic Chemistry; Membrane Proteins	chp. 2: pp. 50-64 chp. 3: pp. 72-74
Aug 26 (W)	Cell Membranes, Vesicles; Organelles	chp. 3: pp. 70-74, 83-96 chp. 4: pp. 126-127
Aug 28 (F)	Nucleus and DNA; Transcription and Translation	chp. 3: pp. 100-117

Aug 31 (M)	Genetic Inheritance	chp. 27: pp. 1093-1097
Sep 2 (W)	Genetic Inheritance	chp. 27: pp. 1093-1097
Sep 4 (F)	**Exam 1** *lecture & on your own material 8/17—8/31*	

Sep 7 (M)	Histology; Epithelial Tissue	chp. 4: pp. 123-137
Sep 9 (W)	Connective Tissue	chp. 4: pp. 137-147
Sep 11 (F)	Integumentary System	chp. 5: pp. 160-174

Sep 14 (M)	Integumentary System	chp. 5: pp. 174-181
Sep 16 (W)	Bone Classifications & Histology	chp. 6: pp. 184-194
Sep 18 (F)	**Exam 2** *lecture & on your own material 9/2—9/14*	

Sep 21 (M)	**FREE DAY**	
Sep 22 (Tu)	***Laboratory Exam 1: Bone Practical***	
Sep 23 (W)	Bone Development and Homeostasis	chp. 6: pp. 194-207
Sep 25 (F)	Articulations	chp. 8: pp. 257-270

Sep 28 (M)	Synovial Joints	chp. 8: pp. 261-264, 270-273
Sep 30 (W)	Specific Synovial Joints; Joint Disorders	chp. 8: pp. 264, 274-280
Oct 2 (F)	Gross Muscle Anatomy	chp. 9: pp. 283-289
On Your Own	Gluteal Muscles	

Oct 5 (M)	Motor Units and Muscle Contractions	chp. 10: pp. 364-371
On Your Own	Anterior Thigh Muscles; Posterior Thigh Muscles	
Oct 7 (W)	Muscle Histology and Cytology	chp. 10: pp. 337-347
On Your Own	Medial Thigh Muscles	
Oct 9 (F)	**Exam 3** *lecture & on your own material 9/16-10/5*	

Oct 12 (M)	Sliding Filament Model of Contraction	chp. 10: pp. 355-360, 365-366
On Your Own	Posterior Leg Muscles Anterolateral Leg Muscles	
Oct 14 (W)	Walking	chp. 9: pp. 332-335
On Your Own	Posterior Shoulder Girdle Muscles Anterior Shoulder Girdle Muscles	
Oct 16 (F)	Neuromuscular Junction; Excitation	
On Your Own	Intrinsic Shoulder Muscles	chp. 10: pp. 347-355

Oct 19 (M)	Muscle Metabolism	chp. 10: pp. 360-363 chp. 23: pp. 902-914
On Your Own	Anterior Arm Muscles; Posterior Arm Muscles	
Oct 21 (W)	Skeletal Muscle Performance; Muscle Fiber Types	chp. 10: pp. 367-368, 371-374
On Your Own	Anterior Forearm Muscles; Posterior Forearm Muscles	
Oct 23 (F)	**Exam 4** *lecture & on your own material 10/7—10/19*	

Oct 26 (M)	Scapular Movement Shoulder (Arm) Movement Elbow (Forearm) Movement Wrist Movement	chp. 9: pp. 312-321
On Your Own	Anterolateral Abdominal Muscles; Neck Muscles	
Oct 28 (W)	Spinal Nerves	chp. 7: pp. 230-231 chp. 13: pp. 475-479, 488-489
Oct 30 (F)	Neurohistology and Neurophysiology	chp. 11: pp. 384-397

Nov 2 (M)	Resting, Graded, and Action Potentials	chp. 11: pp. 393-405
Nov 4 (W)	Synapses and Neurotransmitters	chp. 11: pp. 406-417
Nov 6 (F)	**Exam 5** *lecture & on your own material 10/21—11/2*	

Nov 9 (M)	Central Nervous System: Brain	chp. 12: pp. 425-442
Nov 11 (W)	Cranial Nerves	chp. 13: pp. 481-489
Nov 13 (F)	CNS: Spinal Cord and Protection of the CNS	chp. 12 pp. 443-452

Nov 16 (M)	**FREE DAY**	
Nov 17 (Tu)	***Laboratory Exam 2: Muscle Practical***	
Nov 18 (W)	Central Nervous System Disorders	chp. 12 pp. 424-471
Nov 20 (F)	*Quiz only*	

Nov 23 (M)	*Optional Finals Review*	

Dec 4 (F)	**FINAL EXAM, 10:30a.m.—1:00p.m. PT**	

Laboratory Schedule for Bio 1030, Fall 2020

Week of:	*Lab Exercise*	*Quiz*
Aug 17	Skeletal System: Appendicular Skeleton	*no quiz*
Aug 24	Basic Chemical Principles	*appendicular skeleton*
Aug 31	Skeletal System: Axial Skeleton	*no quiz*
Sep 7	Quiz only	*axial skeleton*
Sep 14	Skeleton—Review	*no quiz*
Sep 21	**Laboratory Exam 1: Skeleton Practical**	
Sep 28	Muscles of cat lower body	*no quiz*
Oct 5	Muscles of human lower body	*muscles of cat lower body*
Oct 12	Muscles of cat upper body—part 1	*muscles of human lower body*
Oct 19	Muscle Physiology	*muscles of cat upper body*
Oct 26	Muscles of cat upper body—part 2	*no quiz*
Nov 2	Human upper body	*muscles of cat upper body*
Nov 9	Review: Human and cat muscles	*muscles of human upper body*
Nov 16	**Laboratory Exam 2: Muscle Practical**	
Nov 23	NO LAB—THANKSGIVING WEEK	
Nov 30	NO LAB—FINALS WEEK	