

# IPHY 3415 Student Packet – Fall 2019

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## SYLLABUS - IPHY 3415, HUMAN ANATOMY LAB

**LAB COORDINATOR** Steven L Hobbs, steven.hobbs@colorado.edu  
Office Hours: Ramaley N189, Tuesday 10:30 AM– 12:00 PM

**COURSE WEB PAGES** <https://www.colorado.edu/iphy/undergrad/courses/human-anatomy-laboratory-iphy-3415>

### REQUIRED MATERIAL

- 1) *Human Anatomy Laboratory Manual* – 4<sup>th</sup> Ed, Hobbs, et. al.
- 2) *MyLab and Mastering A&P Access for Marieb, Human Anatomy, 8e – Pal (Practice Anatomy Lab) 3.1* is accessed from the study area within MyLab and Mastering A&P.
- 3) *IPHY 3415 Human Anatomy Lab Model Atlas* – 3<sup>rd</sup> Ed, Hobbs, et. al.

### LAB PRACTICALS & QUIZZES

265 points are based on exams and quizzes as follows:

240 points	4 Midterm Practical Exams (60 each. See schedule for dates.)
15 points	Muscle Actions & Movement In-Class Quiz
10 points	Mastering A&P Online Quizzes

### GRADING

Final grades are assigned based on percent of total points, without rounding, and using all decimal places carried by Canvas. Grading is 100% objective. Students will not be “bumped up” to the next grade based on effort, graduation status, financial aid consequences, etc. Grade cutoffs are below:

	86.7% = B+	76.7% = C+	66.7% = D+	0% - 59.99% = F
93.4% = A	83.4% = B	73.4% = C	63.4% = D	
90% = A-	80% = B-	70% = C-	60% = D-	

Re-Grades: TA's will only consider re-grades through the end of the next class period after graded exams are returned, or 24 hours after the last exams are graded and made available to students.

Exam Exemptions: No exams will be automatically “dropped”. A student may be exempt from one exam if documentation is provided within two days of the exam, and qualifying reasons exist (see below). However...

**IF A STUDENT TAKES AN EXAM AND RECEIVES THEIR SCORE, ANY OPPORTUNITY TO BE EXEMPT FROM THE EXAM, EVEN FOR QUALIFYING REASONS IS FORFEITED.**

**Exam Exemption Qualifiers:** Documented cases of the following: severe acute illness or injury, family emergency (death or serious illness), severe accidents, extreme circumstances beyond your control.

**Non-Qualifiers:** Weather, weddings, vacations, bachelor(ette) parties, ski trips, athletic competitions, research conferences, work obligations, court dates, jury duty, incarceration or anything fun.

### PRE-LAB QUIZZES

Weekly online quizzes through MyLab Mastering A&P exist for every day of new material. Quizzes due before the first exam ( unit 1 ) are available on the first day of the semester. Quizzes associated with units 2, 3 and 4 will be released prior to each exam of the previous unit. Quizzes are generally due at 11:59 PM on the Sunday **prior** to the classes that cover the quiz material. On weeks with a practical exam on Monday and Tuesday, the quiz for Wednesday and Thursday's new material week will be due on Tuesday at midnight. An additional quiz on the syllabus and schedule is due on Sunday at 11:59 PM of the first week. Students are responsible for keeping track of quiz deadlines, which are posted on Mastering A&P.

Each quiz can only be attempted once for credit. However, within a quiz attempt, individual multiple choice quiz questions can be attempted twice and will incur a 50% penalty per incorrect answer. Short answer questions can be attempted twice, but the first incorrect answer will not incur a penalty. Please keep in mind that computers, not humans, grade the quizzes. Write-in answers must be spelled perfectly and presented exactly as

written in the lab manual, or in Pal 3.1. To do well on these quizzes, students should watch the lesson videos on CANVAS, preview the material in the lab manual, and review the slides on Pal 3.1 that are listed in each lesson plan.

Each day of new material is represented by two quizzes, A and B. Students will be assigned to group A or B at the beginning of the semester. The purpose of these assignments is to give students a subset of material to focus on prior to class. However, students will have access to A and B versions of all quizzes. At the end of the semester, the best score for each quiz, A or B, will be used for grade calculations.

The penalty for submitting a quiz after the deadline is 10% per hour late. **Quiz exemptions or due date extensions will not be granted for ANY REASON.** This includes sickness, emergencies, Internet failures, other computer problems, technical problems related to your Mastering A&P account and all reasons that might otherwise qualify a student for an exam exemption. In lieu of quiz exemptions, the lowest 4 quiz scores will be dropped from student grade calculations.

Problems related to your MyLab Mastering A&P account should be directed to the Pearson technical support group, which can be accessed via the [Support](#) link at the bottom of every page on Mastering A&P. Your TA and the lab coordinator are unable to help with technical computer issues or issues with MyLab Mastering A&P. Quizzes will vary in the number of questions and difficulty, but all quizzes are equivalent in point value. Quiz scores will be converted into percentages. Average quiz percentages will be multiplied by 10 to calculate quiz points.

## **LABORATORY POLICIES AND CONDUCT**

The Human Anatomy laboratory uses prosected human cadavers. This experience serves as a valuable teaching tool, and is one afforded to few students. Students are expected to show respect at all times toward the cadavers. Viewing the cadavers is limited to enrolled students and lab personnel. Students may not bring friends to the lab. If any student treats the cadavers with disrespect, defaces the cadavers in any way, or removes human anatomical specimens from the laboratory, a failing grade will be given for the course. Photography is not allowed in the lab. Violation of this policy may result in expulsion from the course and/or a failing grade.

Eating or drinking in lab is not permitted when the cadavers or cadaver tissues are exposed.

## **REQUIRED SYLLABUS STATEMENTS**

### **ACCOMMODATION FOR DISABILITIES**

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or [dsinfo@colorado.edu](mailto:dsinfo@colorado.edu) for further assistance. If you have a temporary medical condition or injury, see [Temporary Medical Conditions](#) under the Students tab on the Disability Services website.

### **CLASSROOM BEHAVIOR**

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the policies on [classroom behavior](#) and the [Student Code of Conduct](#).

### **HONOR CODE**

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code ([honor@colorado.edu](mailto:honor@colorado.edu)); 303-492-5550). Students who

are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the [Honor Code Office website](#).

### **SEXUAL MISCONDUCT, DISCRIMINATION, HARASSMENT AND/OR RELATED RETALIATION**

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about the OIEC, university policies, [anonymous reporting](#), and the campus resources can be found on the [OIEC website](#).

Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

### **RELIGIOUS HOLIDAYS**

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, {Faculty: *insert your procedures here*}. See the [campus policy regarding religious observances](#) for full details.

## TENTATIVE LAB SCHEDULE

**IMPORTANT – Campus closures due to weather or other unforeseeable events may alter this schedule. Often a review day is eliminated and/or lab topic dates are altered when campus closures occur.**

Week	Day	Date	Lab Topics
1	M/T	Aug 26/27	NO LABS – Cadaver Prep, TA & UGTA Training
	W/Th	Aug 28/29	Syllabus and Schedule, Intro Material, Lab Manual Pages 1 - 17.
2	M/T	Sep 2/3	Labor Day Holiday – NO LABS
	W/Th	Sep 4/5	Lesson 1: Appendicular skeleton day 1
3	M/T	Sep 9/10	Lesson 2: Appendicular skeleton day 2
	<b>Wed, Sep 11, 11:59 PM – Deadline to drop without a “W”</b>		
	W/Th	Sep 11/12	Lesson 3: Axial skeleton day 1
	<b>Friday, Sep 13, 11:59 PM – Last day waitlisted students can attend anatomy lab</b>		
4	M/T	Sep 16/17	Lesson 4: Axial skeleton day 2
	W/Th	Sep 18/19	Review
5	M/T	Sep 23/24	<b>Practical Exam 1</b>
	W/Th	Sep 25/26	Lesson 5: Muscles, Anterior Day 1
6	M/T	Sep 30/Oct 1	Lesson 6: Muscles Anterior Day 2
	W/Th	Oct 2/3	Lesson 7: Muscles, Posterior Day 1
7	M/T	Oct 7/8	Lesson 8: Muscles, Posterior Day 2
	W/Th	Oct 9/10	Lesson 9: Articulations, Origins, Insertions, Movement & Actions
8	M/T	Oct 14/15	Review
	W/Th	Oct 16/17	<b>Practical Exam 2 (No Movement or Action material)</b>
9	M/T	Oct 21/22	Lesson 10: Respiratory & Digestive
	W/Th	Oct 23/24	Lesson 11: <b>Movement &amp; Action Quiz.</b> The Heart
10	M/T	Oct 28/29	Lesson 12: Arteries day 1
	W/Th	Oct 30/31	Lesson 13: Arteries day 2
	<b>Fri, Nov 1, 11:59 PM - Last day to Drop a Class in MyCUInfo.</b> After today, students must petition through Arts and Sciences Academic Advising in Woodbury 109		
11	M/T	Nov 4/5	Lesson 14: Veins
	W/Th	Nov 6/7	Review Day
12	M/T	Nov 11/12	<b>Practical Exam 3</b>
	W/Th	Nov 13/14	Lesson 15: CNS day 1
13	M/T	Nov 18/19	Lesson 16: CNS day 2
	W/Th	Nov 20/21	Lesson 17: PNS
14	M/T	Nov 25/26	<b>Fall and Thanksgiving Break</b>
	W/Th	Nov 27/28	
15	M/T	Dec 2/3	Lesson 18: Sensory Systems - Eye and Ear
	W/Th	Dec 4/5	Lesson 19: Reproductive and Urinary System
16	M/T	Dec 9/10	Review
	W/Th	Dec 11/12	<b>Practical Exam 4</b>

## Attendance and Wait-listing in IPHY 3415

Human Anatomy Lab is one of the most popular and challenging courses in Arts and Sciences. Students from many different departments take this course, and this course is often repeated due its difficulty level. As such, many students find themselves on the wait list with many questions. The information below should handle most of these questions. For additional questions about registration, please contact the registrar. Please also read this carefully, as emails that can be answered from the information below are unlikely to receive a reply.

**Students who do not abide by the attendance policies below may be dropped from the course. Students are responsible for knowing if they are enrolled, wait listed or not enrolled in the course.**

- 1) Students must attend their enrolled section for the first two weeks of class, or they may be dropped. Attending a waitlisted section will not save your spot in your enrolled lab.
- 2) Students who are not enrolled, but who are wait listing multiple sections must attend **only one** of their wait listed sections, and must notify the TAs of other wait listed sections to remain on those wait lists.
- 3) Enrolled students may not attend any of their wait list sections, but should contact the TA of those sections to remain on the wait list.
- 4) The enrollment per section is capped at 16 students and **will not be changed**. The enrollment limit is not based on the number of chairs available, but on cadaver, model and human resources.
- 5) Students that wish to be automatically enrolled from a wait list, and simultaneously dropped from an enrolled section must select this option via a checkbox during registration.
- 6) Students that drop from the wait list will not be enrolled. Students that remain on the wait list have some chance of being enrolled. Beyond this, more precise predictions are impossible.
- 7) Your TA and the lab coordinator have **no control** over the ordering of the wait list. We cannot change a student's wait list position, or increase the number of positions available on the wait list. The wait list order is not based on when a student adds to the wait list, but instead on student major, the number of credits taken, and possibly other factors deemed relevant by the college of Arts and Sciences.
- 8) After the third week of class, students that are not enrolled cannot attend or take exams.
- 9) Students are responsibility for knowing all registration deadlines. Please check with the registrar for these dates rather than ask your TA, or the lab coordinator.
- 10) TAs and Instructor's will not check the availability of other sections for students. During the first two weeks of class, students have access to the same information that TAs and faculty do through their registration portal.

## MyLab and Mastering A&P Registration Instructions

**IMPORTANT:** Do NOT email your TA, the lab coordinator or Pearson's help desk for assistance until you have gone through the steps below. Your TA and the lab coordinator are unable to help with technical problems.

### Accessing Mastering A&P

- 1) Clear cache and cookies: <https://support.pearson.com/getsupport/s/article/Deleting-Browser-Cached-Files-and-Cookies>
- 2) Disable pop-up blockers: <https://support.pearson.com/getsupport/s/article/Pop-Up-Blockers>
- 3) Login to Canvas, choose the current semester and navigate to our Human Anatomy Laboratory course
- 4) From the menu on the left, choose "MyLab and Mastering", then click on "Open Mylab & Mastering"
- 5) Follow the enrollment instructions and provide an access code when prompted. Repeat students see SPECIAL CASES below.

### Three ways to acquire an access code

- 1) DEFAULT: Day 1 Inclusive Access. IPHY 3410 concurrently enrolled students will be automatically billed and will receive an email with an access code from [no-reply@verbasoftware.com](mailto:no-reply@verbasoftware.com). This option costs \$77.87, will include an eBook and is ~ \$3 more than purchasing a non-eBook account directly through Pearson. The fee will appear on student tuition and fee bills. Students may opt out by following instructions in the email from verbasoftware.com.
- 2) Purchase a new 8<sup>th</sup> edition Human Anatomy, Marieb and Mallat text with an unused access code, ~ \$170.
- 3) Opt out of Day 1 Inclusive Access and purchase an access code online when accessing MyLab and Mastering through Canvas. Cost is ~ \$75. eBooks are not included with this option.

### Course ID

Students do NOT need a course ID to enroll in MyLab and Mastering. Access to this resource MUST occur through the Canvas link. Logging into Pearson from outside Canvas is possible but will not grant access to our course.

### **SPECIAL CASES**

#### **Retaking Anatomy and already purchased Mastering A&P?**

Students do not need to purchase an additional code. Your login credentials should still work. Most CU Students have two CU email addresses. Be certain you are using the same login credentials.

#### **Waitlisted or online text book purchase hasn't arrived yet?**

Gain free access for 14 days via the link at the bottom of Pearson's registration page. When your text book arrives, enter our Mastering Course Home through Canvas, click MyCourses in the upper left, then on Pay or use an access code and follow instructions accordingly.

#### **Temporary Access is expired, or will expire soon?**

Enter our Mastering Course Home through Canvas, click MyCourses in the upper left, then on Pay or use an access code and follow instructions accordingly.

**Session Ended/Expired error:** <https://support.pearson.com/getsupport/s/article/Your-Session-Ended-Please-Start-Again>

### **PEARSON HELP DESK & TECHNICAL REPRESENTATIVE**

For all other issues contact Pearson's Help Desk: <https://support.pearson.com/getsupport/s/contactsupport>  
Pearson's help desk is available 24/7, but responses may take up to 24 hours, especially on weekends and holidays. If the help desk is unable to resolve your problem, they will provide you with an incident number that you should then send in an email along with a brief explanation of the problem to our Pearson's representatives, Tom Johnson: [tom.johnson@pearson.com](mailto:tom.johnson@pearson.com) and Donna DePaulis: [donna.depaulis@pearson.com](mailto:donna.depaulis@pearson.com)

<b>N268</b>		
	<b>Mon/Wed</b>	<b>Tue/Thur</b>
<b>8 - 9:50</b>	<b>001</b> TA: Trey Jouard UGTA: Austin Beltramo	
<b>10 - 11:50</b>	<b>002</b> TA: Tyler Akonom UGTA: Hash Taja	<b>012</b> TA: Kristin Cler UGTA: Melissa Behrer
<b>12 - 1:50</b>	<b>004</b> TA: Christine Foxx UGTA: Lailah Safi	<b>014</b> TA: Trey Jouard UGTA: Aaron Lange
<b>2 - 3:50</b>	<b>006</b> TA: Christine Foxx UGTA: Kaylie Evans	<b>016</b> TA: Aimee Thomas UGTA: Ledy Gebrehiwot
<b>4 - 5:50</b>		<b>018</b> TA: Aimee Thomas UGTA: Shelby Essex
<b>6 - 7:50</b>		<b>020</b> TA: Anne Waddle UGTA: None

<b>N276</b>		
	<b>Mon/Wed</b>	<b>Tue/Thur</b>
	<b>003</b> TA: Andrew Lombardi UGTA: Garrett Simonian	<b>013</b> TA: Andrew Lombardi UGTA: Joy He
	<b>005</b> TA: Tyler Akonom UGTA: Honora Laduzinsky	<b>015</b> TA: Elise Shalowitz UGTA: Catherine Schaefer
	<b>007</b> TA: Kelsey Loupy UGTA: Sarah Bellatti	<b>017</b> TA: Elise Shalowitz UGTA: Karissa Abele
	<b>009/219R</b> TA: Kristin Cler UGTA: Melia Golin	

## Anatomy Program Contact List

### **Lab Coordinator**

Hobbs, Steven	<a href="mailto:Steven.hobbs@colorado.edu">Steven.hobbs@colorado.edu</a>	303 492 7629 (o)
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### **Dissectors**

Heisler, Ruth	<a href="mailto:Ruth.heisler@colorado.edu">Ruth.heisler@colorado.edu</a>
Saul, Leif	<a href="mailto:Leif.saul@colorado.edu">Leif.saul@colorado.edu</a>
Teske, Taylor	<a href="mailto:Taylor.teske@colorado.edu">Taylor.teske@colorado.edu</a>
Moraweic, Jakob	Jakob.Morawiec@Colorado.EDU

### **Graduate TAs**

First name	Last name	Email
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Trey	Jouard	<a href="mailto:trey.jouard@colorado.edu">trey.jouard@colorado.edu</a>
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Annie	Waddle	<a href="mailto:anne.waddle@colorado.edu">anne.waddle@colorado.edu</a>

### **Undergraduate Teaching Assistants**

First name	Last name	Student ID	Email
Karissa	Abele	106564227	<a href="mailto:kacr4962@colorado.edu">kacr4962@colorado.edu</a>
Melissa	Behrer	105845349	<a href="mailto:mebe7123@colorado.edu">mebe7123@colorado.edu</a>
Sarah	Bellatti	106990914	<a href="mailto:sabe4332@colorado.edu">sabe4332@colorado.edu</a>
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Garrett	Simonian	107045592	<a href="mailto:gasi0267@colorado.edu">gasi0267@colorado.edu</a>
Hash Brown	Taha	107776299	hashbrown@colorado.edu

## Checklist for First Day of Class

### **1) Introductions & Roll (~ 10 min)**

- Roll
- Introduce TA and UGTA
- Give email, office location and office hours

### **2) Discuss attendance & waitlist (~ 5 min)**

- Attendance for enrolled students
- Attendance for waitlist students (see waitlist page in TA packet)

### **3) syllabus, course policies, exams, grading (~ 30 min)**

- Required Material (Lab Manual, Mastering A&P)
- Evaluations
  - 4 Practical Exams. Exam 1 does not involve cadavers. Exams 2,3 & 4 use cadavers.
  - timed, short answer, all content in lab manual.
- Online Quizzes
  - 10 points total (~ less than ½ of 1% of final grade)
  - Student must register with MyLab Mastering A&P through CANVAS to take quizzes.
  - Quiz 1 Due Sunday of 1<sup>st</sup> week. Covers syllabus, schedule, waitlist, Lab manual intro.
  - Weekly quizzes are due on Sundays prior to class at 11:59 PM.
  - No extensions or exemptions for quizzes for **any reason**.
  - Lowest two quiz scores are dropped.

### **4) Grading (~ 5 minutes)**

- 100% objective, set by lab coordinator
- spelling counts
- no automatically dropped exams or makeups
- Re-grade policy - end of lab period following return of graded exams.

### **5) Cadavers & Lab Conduct (~ 5 minutes)**

- No food/drink near humidors or tissues
- Respect the cadavers as humans and honor their wishes by learning from them.
  - Treat them well
  - Remains will be cremated and returned to family
  - Nitrile gloves required & lab coats recommended after exam 1
- Students tidy labs and exit classrooms by 10 before the hour

### **6) Anatomy Lessons**

- Briefly description of reciprocal teaching approach, Pal 3.1 review and quizzes
- Review Lesson 1 in student packets

### **7) Introduction to Anatomy, the Integument and the Skeletal System (~ 1 hour)**

- Lab 1: assigned as out-of-class material
- Lab 2: The Integument. TA demonstration of material and demonstration technique
  - make contact with the structure such that all students can see
  - pronounce the anatomical structure correctly. Spell where appropriate
  - outline the structure boundaries and provide additional descriptions
- Lab 3 Pg. 13 – 17: Classifications of bones, Gross anatomy of long bone.

## DAILY LAB STRUCTURE

Class Organization: (1 - 2 min)

Class splits into group A and B

Part 1 - Mastering Pre-Assigned Learning Objective (~ 35 - min)

TA/UGTA orchestrated review of the pre-assigned material for each group. Students master the material assigned to their group.

Part 2 - Reciprocal Teaching (~ 45 - min)

Students from different groups form partners and teach each other the material they've mastered, switching roles about half way through part 2.

Part 3 - TA/UGTA lead review tours (~ 10 min)

Students return to their groups for TA/UGTA guided review of the material learned in part 2. TAs and UGTAs identify and pronouncing all structures, providing a thorough "quality control" tour.

Part 4 - Switch classrooms for TA/UGTA-lead cadaver tours (~20 min)

Part 4 - Clean up! (~ 1 minute)

## Exam 1 Lesson Assignments

**Class Preparation:** For every day of new material, students should watch the corresponding lesson video on CANVAS, review the lab models on the course web page, <http://www.colorado.edu/intphys/iphy3415/models/>, and take the corresponding quiz on Mastering A&P prior to class

**Exam 1 Testable Material:** Everything in laboratory 1 – 4 (pg. 1 – 45).

### **Additional Review:**

- 1) Interactive images on course web page, <http://www.colorado.edu/intphys/iphy3415/models/>.
- 2) A non-graded practice quiz is available on Mastering A&P.
- 3) The IPHY club often holds review sessions prior to exams. Ask your TA for details.

### LESSON 1 Appendicular Skeleton Day 1 (Pectoral Girdle & Upper limb)

- Group A Lab manual, pg. 34 – 36, Part A *Pectoral Girdle* through Part B.1 *Humerus* (proximal end and shaft)  
Pal 3.1 Human Cadaver> Appendicular Skeleton > Pectoral Girdle: 1 – 11 & Upper limb: 1-2, 4-6, 8
- Group B Lab manual, pg. 36 – 38, Part B.1 *Humerus* (distal end) through Part C.3 *Hand*  
Pal 3.1 Human Cadaver> Appendicular Skeleton > Upper limb: 1, 3-5, 7-27

### LESSON 2 Appendicular Skeleton Day 2 (Pelvic Girdle & Lower limb)

- Group A Lab manual, pg. 39 - 41: Part D Pelvic Girdle  
Pal 3.1 Human Cadaver> Appendicular Skeleton > Pelvic Girdle: 1 – 7, 10 – 15
- Group B Lab manual, pg. 42 - 44: Part E and F Lower limb and Foot  
PAL 3.1 Human Cadaver> Appendicular Skeleton > Lower limb: 1 - 34

### LESSON 3 Axial Skeleton Day 1 (The skull)

- Group A Lab manual, pg. 18 - 19. A, Part 1 (cranium)  
Pal 3.1 Human Cadaver: Axial Skeleton > Skull: 1 – 12 and 16 – 35. (slides show features from both groups)
- Group B Lab manual, pg. 19. A, Part 2, 3 (facial bones, skull characteristics and features)

### LESSON 4 Axial Skeleton Day 2 (The spinal column, sacrum, coccyx and ribs)

- Group A Lab manual, pg. 26 - 28 Part B.1 - B.3 - cervical and thoracic vertebrae  
Pal 3.1 Human Cadaver: Axial Skeleton > Vertebral Column: 1 – 12, 19
- Group B Lab manual, pg. 26 - 29, Parts B.1, and B.4 – B.6 - lumbar vertebrae through coccyx, Part C. 1 – 3 Thorax  
Pal 3.1 Human Cadaver: Axial Skeleton > Vertebral Column: 1, 2, 13 – 15, 22 – 24 and Thoracic Cage: 1 - 5

### **Review Day**

No new material or quiz for review day. Your TA may setup a very short (5 – 10 questions) practice practical in class.

## Exam 2 Lesson Assignments

**TESTABLE MATERIAL:** Everything in laboratory 4 and 5 (pg 47 - 78), except for the muscle actions and movement material in laboratory 5. Actions and movement will be tested in a separate quiz after exam 2.

**CLASS PREPARATION:** As before, watch the videos on CANVAS, review the assigned material in the lab manual and Pal 3.1, and complete the quizzes on Mastering A&P in advance of class. Specific class assignments are listed below:

### LESSON 5 Anterior muscles, day 1

Group A      Lab Manual: pg. 54 – 55, Lab 5 Part A – B (ANTERIOR ARM and POSTERIOR FOREARM/HAND)  
Pal 3.1 Human Cadaver>Muscular System>Upper limb: 14-16, 23-25, 34  
Pal 3.1 Anatomical Models>Muscular System>Upper limb: 1, 4-5, 7

Group B      Lab Manual: pg. 56 – 57, Lab 5 Part C - E (ANTERIOR THIGH thru ANTERIOR LEG)  
Pal 3.1 Human Cadaver>Muscular System>Lower limb: 16-17, 26-27, 44, 48  
Anatomical Models>Muscular System>Lower limb: 1-2, 5, 9, 11

### LESSON 6 Anterior muscles, day 2

Group A      Lab Manual: pg. 58 – 59, Lab 5, Part F – J (SCALP MUSCLES thru SUPRAHYOID MUSCLES)  
Pal 3.1 Human Cadaver>Muscular System>Head & Neck: 1-6  
Pal 3.1 Anatomical Models>Muscular System>Head & Neck: 1, 3-5, 8

Group B      Lab Manual: pg. 60 – 61, Lab 5 Part K - N (INFRAHYOID MUSCLES thru ABDOMINAL WALL)  
Pal 3.1 Human Cadaver>Muscular System>Head & Neck: 23-27, Trunk: 1-3  
Pal 3.1 Anatomical Models>Muscular System>Head & Neck: 1-2, Trunk: 1-2, 5

### LESSON 7 Posterior muscles, day 1

Group A      Lab Manual: pg. 62 – 63, Lab 5, Section O – Q, POST. THORAX, through POST. NECK AND BACK  
Pal 3.1 Human Cadaver>Muscular System>Head & Neck: 28-30, Trunk: 24-26, 33  
Pal 3.1 Anatomical Models>Muscular System>Trunk: 3-4

Group B      Lab Manual: pg. 64 – 65, Lab 5, Sections R – part of T, POST. ARM through HAND thenar muscles  
Pal 3.1 Human Cadaver>Muscular System>Upper limb: 18-22  
Pal 3.1 Anatomical Models>Muscular System>Upper limb: 1-4

### LESSON 8 Posterior muscles, Day 2

Group A      Lab Manual: Lab5, pg. 68 – 71, Section U – W, GLUTEAL REGION through POSTERIOR LEG  
Pal 3.1 Human Cadaver>Muscular System>Lower limb: 22-24, 50-52, 55-56  
Pal 3.1 Anatomical Models>Muscular System>Lower limb: 3-4, 8, 10, 12-13

Group B Lab manual pg. 66 – 67, Lab 5, Section T, ANTERIOR HAND  
Lab Manual: pg. 72 – 73, Lab 5, Section X – Y, LATERAL LEG – FOOT)  
Pal 3.1 Human Cadaver>Muscular System>Upper limb: 27-30 & Lower limb: 72-75  
Pal 3.1 Anatomical Models>Muscular System>Upper limb: 6, 8-9 & Lower limb: 10-11, 13

### LESSON 9 Articulations, Origins, Insertions, Movement & Actions

Group A & B      Study Muscle Origins and Insertions and Actions throughout lab 5 and movements on pg 74 – 78

### **Review Day**

No new material or quiz for review day. Your TA may setup a very short (5 – 10 questions) practice practical in class.

### **ADDITIONAL REVIEW:**

- 1) Interactive images on course web page, <http://www.colorado.edu/intphys/iphy3415/models/>.
- 2) A non-graded practice quiz is available on Mastering A&P.
- 3) The IPHY club often holds review sessions prior to exams. Ask your TA for details

## Exam 3 Lesson Assignments

**TESTABLE MATERIAL:** Everything in lab 6 – 8 (pg. 79 – 108).

**CLASS PREPARATION:** As before, watch the videos on CANVAS, review the assigned material in the lab manual and Pal 3.1, and complete the quizzes on Mastering A&P in advance of class. Specific class assignments are listed below:

### **LESSON 10: Respiratory and Digestive Systems**

Group A            Lab Manual: Respiratory System, lab 6, pg. 79 – 85  
Pal 3.1 Human Cadaver>Respiratory System: 1-8, 10, 13  
Pal 3.1 Anatomical Models>Respiratory System: 1-8

Group B            Lab Manual: Digestive System, lab 7, pg 87 – 93  
Pal 3.1 Human Cadaver>Digestive System 1-9, 11-16, 20  
Pal 3.1 Anatomical Models>Digestive System 1-9, 11

### **Lesson 11: The Heart**

Group A            Lab Manual Pg. 95 – 98, The Heart, Parts A, C, D  
Pal 3.1 Human Cadaver>Cardiovascular>Heart: 1-3, 6, 12-14  
Pal 3.1 Anatomical Models>Cardiovascular>Heart: 1, 5, 8, 10

Group B:            Lab Manual Pg. 96 – 98, The Heart, Parts E and F  
Pal 3.1 Human Cadaver>Cardiovascular>Heart: 3-4, 7-11  
Pal 3.1 Anatomical Models>Cardiovascular>Heart: 2, 6, 8-10

### **Lesson 12: Arteries: day 1**

Group A            Lab Manual Pg. 99. Lab 8, part II, Part A – Head and neck arteries  
Pal 3.1 Human Cadaver>Cardiovascular>Blood vessels: 3, 12, 14-15, 30-32  
Pal 3.1 Anatomical Models>Cardiovascular>Arteries: 4, 9

Group B            Lab Manual Pg. 99 - 101. Lab 8, part II, Part B Upper limb arteries and Part F. Lower limb arteries.  
Pal 3.1 Human Cadaver>Cardiovascular>Blood vessels: 29-32, 36-37, 42-43  
Pal 3.1 Anatomical Models>Cardiovascular>Arteries: 15-16, 18-19

### **Lesson 13: Arteries: day 2**

Group A            Lab Manual Pg. 100, Lab 8, part C, Thoracic arteries, part D1a. celiac trunk  
Pal 3.1 Human Cadaver>Cardiovascular>Blood vessels: 16, 20-23  
Pal 3.1 Anatomical Models>Cardiovascular>Arteries: 8-9, 11, 13

Group B            Lab Manual Pg. 100, Lab 8, part D1b superior mesenteric artery through part E, Pelvic arteries.  
Pal 3.1 Human Cadaver>Cardiovascular>Blood vessels: 19-20, 22-23  
Pal 3.1 Anatomical Models>Cardiovascular>Arteries: 10-11, 13-14

### **Lesson 14: Veins**

Group A            Lab Manual Pg. 104, Parts A, B, C, Head and neck veins through Thoracic veins.  
Pal 3.1 Human Cadaver>Cardiovascular>Blood vessels: 2, 13, 16, 17, 26-28, 30  
Pal 3.1 Anatomical Models>Cardiovascular>Veins: 5, 9-12, 14

Group B            Lab Manual Pg. 104, Parts D & E. Abdominal veins through lower limb veins.  
Pal 3.1 Human Cadaver>Cardiovascular>Blood vessels: 19-20, 23, 33, 37-38  
Pal 3.1 Anatomical Models>Cardiovascular>Veins: 7, 9, 13, 15, 18

### **Additional Review:**

- 1) Interactive images on course web page, <http://www.colorado.edu/intphys/iphy3415/models/>.
- 2) A non-graded practice quiz is available on Mastering A&P.
- 3) The IPHY club often holds review sessions prior to exams. Ask your TA for details.

## Exam 4 Lesson Assignments

**TESTABLE MATERIAL:** Everything in lab 9 - 11 (pg. 109 – 138).

**CLASS PREPARATION:** As before, watch the videos on CANVAS, review the assigned material in the lab manual and Pal 3.1, and complete the quizzes on Mastering A&P in advance of class. Specific class assignments are listed below:

### LESSON 15 Central Nervous System: day 1

Group A Lab Manual Pg. 109-110, Part II. section A.1. cerebrum, parts a – h  
Pal 3.1 Human Cadaver>Nervous System>CNS: 21-23, 35, 37-38, 40-41  
Pal 3.1 Anatomical Models>Nervous System>CNS: 1-3, 8

Group B Lab Manual Pg. 110, part 2 through part 3a. diencephalon through midbrain.  
Pal 3.1 Human Cadaver>Nervous System>CNS: 27-29, 31, 31-34  
Pal 3.1 Anatomical Models>Nervous System>CNS: 3-5, 7-9, 12-14

### LESSON 16 Central Nervous System: day 2

Group A Lab Manual Pg. 110 - 113, part 3b, pons, through part 6, fluid cushion  
Pal 3.1 Human Cadaver>Nervous System>CNS: 21, 25, 27, 29, 30-31, 36  
Pal 3.1 Anatomical Models>Nervous System>CNS: 4-5, 7

Group B Lab Manual Pg. 114 – 117, part 7, blood supply, through B. spinal cord  
Pal 3.1 Human Cadaver>Nervous System>CNS: 4, 7-8, 16, 26, 42-43  
Pal 3.1 Anatomical Models>Nervous System>CNS: 2, 16-18

### LESSON 17 Peripheral Nervous System

Group A Lab Manual Pg.118 - 119, Cranial nerves, Pg 120 – 122 spinal nerves & sacral plexus only (not C1, C2 and C3)  
Pal 3.1 Human Cadaver>Muscular System>Trunk: 21  
Pal 3.1 Anatomical Models>Nervous System>PNS: 1-3, 9

Group B Lab Manual Pg.120 – 122, Parts C1 – C3, cervical, brachial & lumbar plexus  
Pal 3.1 Human Cadaver>Nervous System>PNS: 8-11  
Pal 3.1 Anatomical Models>Nervous System>PNS: 4, 6-8

### LESSON 18 Special Senses: Eye & Ear

Group A Lab Manual Pg. 127, Part I, Ear  
Pal 3.1 Human Cadaver>Nervous System>Special Senses: 12-17  
Pal 3.1 Anatomical Models>Nervous System>Special Senses: 9-11

Group B Lab Manual Pg.127 - 128, Part II, Eye  
Pal 3.1 Human Cadaver>Nervous System>Special Senses: 6, 8-11  
Pal 3.1 Anatomical Models>Nervous System>Special Senses: 1-8

### LESSON 19 Reproductive & Urinary Systems

Group A Lab Manual Pg 133, Male reproductive and Pg 134, Part II, B and C1. Urinary  
Pal 3.1 Human Cadaver>Reproductive System: 1-8, Urinary System: 5-7  
Pal 3.1 Anatomical Models>Reproductive System: 1-4, Urinary System: 10-14

Group B Lab Manual Pg 133, Female reproductive and Pg 134, Part II. A, Kidney and C2. urinary  
Pal 3.1 Human Cadaver>Reproductive System: 9-11, Urinary System: 1-4  
Pal 3.1 Anatomical Models>Reproductive System: 5-9, Urinary System: 1-2, 5

### **Additional Review:**

- 1) Interactive images on course web page, <http://www.colorado.edu/intphys/iphy3415/models/>.
- 2) A non-graded practice quiz is available on Mastering A&P.
- 3) The IPHY club often holds review sessions prior to exams. Ask your TA for details.

**Extra Credit OIA material** 2 Extra credit questions (4 points) on the OIA material below may appear on the 3rd exam. The OIA material below is otherwise NOT testable.

### **B. POSTERIOR FOREARM AND HAND**

extensor carpi radialis longus (*O: l. supracondylar ridge I: 2<sup>nd</sup> metacarpal A: extends, abducts hand*)

extensor carpi radialis brevis (*O: l. supracondylar ridge I: 3<sup>rd</sup> metacarpal A: extends, abducts hand*)

extensor digitorum (*O: l. epicondyle I: distal phalanges 2 – 5 A: extends hand and digits 2-5*)

extensor carpi ulnaris (*O: l. epicondyle I: 5<sup>th</sup> metacarpal A: extends, adducts hand*)

supinator (*O: l. epicondyle I: radius A: supination*)

abductor pollicis longus (*O: radius, ulna I: 1<sup>st</sup> metacarpal, trapezium A: abducts, extends thumb*)

extensor pollicis longus (*O: ulna & interosseous membrane I: distal phalanx A: extends thumb*)

extensor pollicis brevis (*O: radius, ulna I: proximal phalanx of thumb A: extends thumb*)

extensor indicis (*O: ulna I: extensor expansion of index finger A: extends index finger*)

extensor digiti minimi (*O: l. epicondyle of humerus I: 5<sup>th</sup> proximal phalanx A: extends 5<sup>th</sup> digit*)

anconeus (*O: l. epicondyle of humerus I: olecranon A: abducts ulna during forearm pronation, extends forearm*)

extensor retinaculum – thickened fascia of posterior wrist that guides and anchors tendons

dorsal interossei (*O: metacarpals I: extensor expansions 2 – 5 A: abduct & flex p. phalanges, extend d. phalanges*)

### **F. SCALP MUSCLE**

Epicranium

frontal belly (*O: epicranial aponeurosis. I: skin of eyebrows. A: raises eyebrows*)

occipital belly (*O: occipital & temporal bones. I: epicranial aponeurosis. A: raises eyebrows*)

### **G. FACIAL EXPRESSION**

zygomaticus major (*O: zygomatic bone. I: skin & muscles at corners of mouth. A: smiling*)

zygomaticus minor (*O: zygomatic bone. I: skin & muscles at corners of mouth. A: smiling*)

buccinator (*O: maxilla and mandible. I: orbicularis oris. A: compresses cheek as in whistling and suckling*)

orbicularis oculi (*O: frontal & maxillary bones. I: eyelid. A: closes eye*)

orbicularis oris (*O: other facial muscles. I: skin & muscles at corners of mouth. A: purses & protrudes lips*)

platysma (*O: fascia of chest I:mandible A:depresses mandible and lower lip*)

## **H. MUSCLES OF MASTICATION**

masseter – (*O: zygomatic arch and bone. I: angle & ramus of mandible. A: elevates mandible*)

temporalis – (*O: temporal fossa. I: coronoid process of mandible. A: elevates, retracts mandible*)

## **I. EXTRINSIC TONGUE**

genioglossus (*O: mandible. I: tongue and hyoid bone. A: protracts tongue*)

## **J. SUPRAHYOID MUSCLES**

geniohyoid (*O: mandible. I: hyoid bone. A: elevates and protracts hyoid during swallowing*)

digastric

anterior belly (*O: mandible. I: hyoid bone. A: depresses mandible, elevates hyoid bone*)

posterior belly (*O: mastoid process. I: hyoid bone. A: depresses mandible, elevates hyoid bone*)

mylohyoid (*O: mandible. I: hyoid bone. A: elevates hyoid and floor of mouth*)

stylohyoid (*O: styloid process. I: hyoid bone. A: elevates and retracts hyoid*)

## **K. INFRAHYOID MUSCLES**

sternothyroid (*O:manubrium I: thyroid cartilage A:depresses larynx & hyoid bone*)

sternohyoid (*O: manubrium. I: hyoid bone. A: depresses hyoid & larynx.*)

thyrohyoid (*O:thyroid cartilage I:hyoid bone A:depresses hyoid bone OR elevates larynx if hyoid fixed*)

omohyoid

superior belly (*O: s. border of scapula via inf. belly of omohyoid. I: hyoid bone. A: depresses, retracts hyoid.*)

inferior belly (O: s. border of scapula I: hyoid bone via s. belly of omohyoid A: depresses, retracts hyoid)

## **L. ANTEROLATERAL NECK**

sternocleidomastoid (O: manubrium, clavicle I: mastoid p., s. nuchal line A: flexes, laterally rotates head)

scalenes

anterior, middle, posterior (O: transverse processes I: ribs 1,2 A: elevate ribs, flex and rotate the neck)

## **M. ANTERIOR THORACIC WALL**

external intercostals (O: inferior border of rib above. I: superior border of rib below. A: elevates rib cage)

internal intercostals (O: superior border of rib below. I: inferior border of rib above. A: depresses rib cage)

## **N. ABDOMINAL WALL**

external oblique (O: lower ribs. I: linea alba, pubic crest & tubercle, iliac crest. A: together flex and compress abdomen, unilaterally rotate and laterally flex trunk.)

internal oblique (O: lumbar fascia, iliac crest, inguinal ligament. I: linea alba, pubic crest, inferior ribs & costal margins, A: as for external oblique.)

rectus abdominis (O: pubic crest and symphysis. I: xiphoid process and costal cartilages. A: flex and rotate lumbar region, fix and depress ribs, stabilize pelvis during walking.)

transversus abdominis (O: inguinal ligament, lumbar fascia, lower costal cartilages, iliac crest. I: linea alba, pubic crest. A: compresses abdominal contents.)

## **Q. POSTERIOR NECK AND BACK**

splenius capitis (O: spinous p (C<sub>7</sub> – T<sub>6</sub>) I: mastoid p, occipital bone, transverse (C<sub>2</sub> – C<sub>4</sub>) A: extends head, rotate and laterally bend head to same side

semispinalis capitis (O: transverse p. (C<sub>7</sub> – T<sub>12</sub>) I: occipital bone, spinous p. (C<sub>1</sub> – T<sub>4</sub>) A: extends head and vertebral column, rotates head and vertebral column to opposite side)

erector spinae

iliocostalis (O: iliac crests, ribs I: angles of ribs, transverse p. (C<sub>4</sub> – C<sub>6</sub>) A: extend, laterally flex v. column)

longissimus (O: transverse p. all vertebrae I: transverse p. and ribs superior to origins, mastoid p. A: extend and laterally flex v. column and head.)

spinalis (O: lower v. spines I: upper v. spines A: extends v. column)

## **S. ANTERIOR FOREARM**

flexor carpi radialis (*O:m. epicondyle I:metacarpals 2 - 3 A:flexes, abducts hand*)

palmaris longus (*O:m. epicondyle I:palmar aponeurosis A:flexes hand*)

flexor carpi ulnaris (*O:m. epicondyle, olecranon p. shaft of ulna I:pisiform, hamate, 5<sup>th</sup> metacarpal A:flexes, adducts hand*)

flexor digitorum superficialis (*O:m. epicondyle I:middle phalanges 2-5 A:flexes hand, flexes middle phalanges*)

flexor digitorum profundus (*O:ulna shaft & i.o. membrane I:distal phalanges 2-4 A:flexes distal phalanges*)

flexor pollicis longus (*O: radius shaft & i.o. membrane I:1<sup>st</sup> distal phalanx A:flexes 1<sup>st</sup> distal phalanx*)

pronator teres (*O:m. epicondyle, coronoid p. I:radius shaft A:pronates forearm*)

pronator quadratus (*O:ulna shaft I:radius shaft A: pronates forearm*)

flexor retinaculum – A thick band of deep fascia that prevents flexor tendons from bowing out at the wrist.

## **T. ANTERIOR HAND**

abductor pollicis brevis (*O:flexor retinaculum, scaphoid I:1<sup>st</sup> proximal phalanx A:abducts thumb*)

thenar muscles

flexor pollicis brevis (*O:flexor retinaculum, trapezium I:1<sup>st</sup> proximal phalanx A:flexes thumb*)

opponens pollicis (*O:flexor retinaculum, trapezium I:1<sup>st</sup> metacarpal A:opposition of thumb*)

adductor pollicis (*O:capitate, metacarpals 2-4 I:1<sup>st</sup> proximal phalanx A:adducts thumb*)

abductor digiti minimi (*O:pisiform I: 5<sup>th</sup> proximal phalanx A: abducts 5<sup>th</sup> digit*)

hypothenar muscles

flexor digiti minimi brevis (*O:flexor retinaculum, hamate I:5<sup>th</sup> proximal phalanx A:flexes 5<sup>th</sup> proximal phalanx*)

opponens digiti minimi (*O:flexor retinaculum, hamate I:5<sup>th</sup> metacarpal A:opposition of pinky with thumb*)

lumbricals (*O:tendons of flexor digitorum profundus I:extensor expansions 2-5 A:flex proximal phalanges, extend distal phalanges*)

midpalmar  
muscles

palmar interossei (*O: metacarpals I: proximal phalanges A: Adduct and flex proximal phalanges, extend distal phalanges*)

dorsal interossei (*O: metacarpals I: proximal phalanges A: Abduct and flex proximal phalanges, extend distal phalanges*)

### Y. FOOT – DORSUM

extensor digitorum brevis (*O: calcaneus, e. retinaculum I: 1<sup>st</sup> proximal phalanx, e. expansions 2-5 A: extends toes*)

### Z. FOOT – PLANTAR SURFACE

flexor digitorum brevis (*O: calcaneal tuberosity I: middle phalanges 2-5 A: flexes toes*)

1<sup>ST</sup> LAYER

abductor hallucis (*O: calcaneal tuberosity I: 1<sup>st</sup> proximal phalanx A: abducts great toe*)

abductor digiti minimi (*O: calcaneal tuberosity I: 1<sup>st</sup> proximal phalanx base A: abducts & flexes little toe*)

2<sup>ND</sup> LAYER

flexor accessorius (*O: calcaneus I: tendon of flexor digitorum longus A: straightens out pull of f.d. longus*)

lumbricals (*O: tendons of f.d. longus I: extensor expansions 2-5 A: flex proximal and extends distal phalanges*)

3<sup>RD</sup> & 4<sup>TH</sup> LAYER

flexor hallucis brevis (*O: lateral cuneiform, cuboid I: 1<sup>st</sup> proximal phalanx A: flexes great toe*)

adductor hallucis (*O: base of metatarsals 2-4 I: 1<sup>st</sup> proximal phalanx A: maintains transverse arch of foot, weak adductor of great toe*)

flexor digiti minimi brevis (*O: base of 5<sup>th</sup> metatarsal I: 5<sup>th</sup> proximal phalanx A: flexes little toe*)

interosseous muscles (*O: metatarsals I: extensor expansions A: adduct and abduct toes*)

## Approved Abbreviations for Anatomy Lab Exams

All common English words and directional terms can be abbreviated on exams. Students should always answer questions to the highest level of specificity presented in the lab manual. Please note that full answers, without abbreviations, must be used in Mastering A and P.

### Accepted Abbreviations for Vessel Names:

anterior	a or ant
posterior	p or post
ascending	a or asc (always at beginning of name to distinguish from artery)
descending	d or des (always at beginning of name to distinguish from duct)
medial	m
lateral	l
superior	s
inferior	inf
internal	int
external	e
right	r
left	l (could also be lateral, but we'll give you the benefit of the doubt)
branch	b
trunk	t
artery	a (always at the end of a name to distinguish from anterior and ascending)
vein	v
duct	d

### Examples

- 1) "anterior superior iliac spine" → "ant. post. iliac spine" or "a. p. iliac spine"
- 2) "superior orbital fissure" → "s. orbital fissure"
- 3) "posterior humeral circumflex artery" → "p. humeral circumflex a."