PSL 534 – Cell Biology and Physiology I
COURSE PROTOCOL

Fall Semester, 2015

Course Description

PSL / ANTR / BMB 534: Cell Biology and Physiology I (3 credits, Fall Semester. Required for: Graduate-Professional students in CHM). Modern concepts of cell biology as a basis for understanding the physiology of human tissues and organ systems in health and disease.

Campus Sites and Section Codes

PSL 534 is presented to first-year CHM students at two campus sites:

- **EL** = East Lansing  Section Code = 301
- **GR** = Grand Rapids  Section Code = 302

Course Faculty and Staff

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**Virtual Histology Lab Leaders at each CHM campus**

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Curriculum Assistants: Staff

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Patti Wilkins  A331-D Life Sciences, EL  517-884-1862  wilkin60@msu.edu

CHM-GR:  
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Educational Technology Coordinator

Susan Way, MA  
2240F BPS Building, EL  
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CHM Student Assistants

Histology Lab Assistants

Several MS2 CHM students will assist you in PSL 534-5 virtual histology laboratory.

Course Packet Assistants

Stephanie Tufano, MS2- CHM Class of 2018

Ellen Reilly, MS2- CHM Class of 2018

Eric Schaff, MS2- CHM Class of 2018
Lines of Communication

- **E-mail**: Outside of class e-mail is the preferred method of communication with specific course faculty or staff (better than leaving phone messages). Please use the MSU mail system, and directly address your e-mail to the specific person(s) you wish to reach. Please do not try to use the mail features of the D2L system for this purpose.

- **PSL 534 histology lab sessions**: Lab sessions provide students excellent opportunities for face-to-face conversations with faculty about course content or other matters of interest.

- **D2L**: The Course Director will post administrative emails on a regular basis at D2L rather than using bulk e-mailings. Please get in the habit of routinely checking D2L.

**Tardiness or missed exams**: If illness, emergency, or other compelling circumstance makes it impossible for you to attend an examination session, students should immediately fill out a form entitled “Request for Approval of Absence from an Examination or Required Experience,” (found at your student manual), and submitted by email to the appropriate address listed below:

- **East Lansing students submit to** absencEL@msu.edu
- **Grand Rapids students submit to** absencGR@msu.edu

Detailed information regarding “ABSENCES FROM or TARDINESS to EXAMINATIONS or REQUIRED EXPERIENCES” can be found in the relevant policy section IN THE PRECLINICAL STUDENT HANDBOOK accessed at the CHM website: [http://chm.msu.edu/Medical_Education/BLOCK_I/BLOCK_I_Year1.htm](http://chm.msu.edu/Medical_Education/BLOCK_I/BLOCK_I_Year1.htm), click on Pre-clinical Handbook from the list of featured links.

If you are granted an excused absence from a course exam, your next step is to contact one of the Curriculum Assistants who will let you know the date, time, and place of the makeup exam.

- Patti Wilkins (East Lansing) wilkin60@msu.edu 517-884-1862
- Candace Obetts (Grand Rapids) obetts@msu.edu 616-234-2631

**Missed PSL 534 lab quizzes**: If illness, emergency, or other compelling circumstance makes it impossible for you to attend two or more of your assigned lab sessions, you may request an excused absence from Drs. Osuch or O'Donnell, as directed, above. If an excused absence is granted for two or more lab sessions, your next step is to contact Dr. Wonderlin, Course Director (wonderli@msu.edu).

**NOTE**: In no case will an excused absence be granted for a single, isolated absence from a lab quiz. Such an excuse is unnecessary. You can miss one lab quiz without losing course points.

- **Permanent changes in PSL 534 lab assignment**: CHM assigns you to a 2-hour time block for your PSL 534 histology lab. This lab assignment will also be posted on the PSL 534 D2L web site. Space and instructional support is limited in the lab, so it is essential that you attend only the 2 hour block to which you have been assigned. Also, answers that you submit during lab quizzes will earn course credit only if you are attending the lab session to which you are assigned. Any permanent change in your lab time assignment must be based on a compelling need and negotiated in advance with the college. If you must seek such a permanent lab reassignment, contact the Curriculum Assistant for your campus (as listed on page 2 of this Protocol).
- Changes in Course Protocol or Course Calendar: Any additions or modifications to the Course Protocol or Calendar will be announced on the PSL 534 D2L Web Site.

### Required Course Web Sites

- **D2L system** -- [http://D2L.msu.edu](http://D2L.msu.edu)
  The PSL 534 course web site on D2L will be used to post material important to your success in the course. For example:
  - News, including any changes to the Course Protocol or the Course Calendar
  - Due dates for online problem sets (read about the LON-CAPA system, below)
  - Supplementary lecture or lab material
  - Links to Mediasite Recordings of lectures
  - Self-study materials
  - Answers to frequently-asked questions
  - Practice exam questions
  - Answer keys for course exams
  - Electronic coursepack

  You are advised to check the D2L web site often, especially during the days just prior to course exams!

- **LON-CAPA system** – [http://loncapa.msu.edu](http://loncapa.msu.edu)
  LON-CAPA (Learning Online Network with Computer-Assisted Personalized Approach) will be used to administer Pre-lab Problem Sets.
  You are to complete a short, online problem set as part of your preparation for each PSL 534 histology lab session. The first of these problem sets is for practice using LON-CAPA and will NOT contribute to your PSL 534 grade. The remaining 8 problem sets will be graded and will contribute to your Overall Course Total and grade in PSL 534 (see "Assessment" section of this Protocol). Prelab Problem Sets for each lab will become available at Noon on those Sundays prior to histology Lab Sessions, and will be due at Noon on Thursdays.

**Network access:** To access the web-based D2L and LON-CAPA systems, you will need a reliable broadband internet connection and an up-to-date browser. Firefox is recommended. Such access is readily available in the computer labs at your campus. Alternatively, you may use your own computer to access the internet via ports in study areas, dorm rooms, etc. Campus wireless may or may not be fast enough, depending on the circumstances. From off-campus locations, a cable modem, DSL connection, or equivalent will generally provide adequate speed and reliability. If you have trouble using your own computer to access D2L or LON-CAPA, ask for help from the information technology staff at your campus. **Note, however, that arranging for timely, reliable access to D2L and LON-CAPA is ultimately your responsibility.**
Required Print Materials

The following print materials are listed in priority order (most essential first). Specific, required assignments will be made in each of these source materials as the course progresses:

- **PSL 534 Study Guide (“course pack”) for Fall 2015.** The Study Guide is basically a workbook, developed by the course faculty to facilitate your achievement of the course objectives. The Study Guide will be published in two parts. Part 1 is distributed during Block I orientation. Part 2 will become available in mid-October. The Lab Manual is included in Parts 1 & 2. The college provides directions for obtaining a print copy of each part of the Study Guide. An electronic version of the Study Guide (pdf format) is also available via a link on the PSL 534 web site. The Study Guide is provided to you at the lowest cost possible; no one at MSU makes any profit from its sale.

  **Note:** The Study Guide for 2015 is significantly different from last year’s version. You really do need your own personal copy of the 2015 Study Guide! Bring the relevant sections of the Study Guide to each lecture and lab session!


  **Note:** It is essential that you have your own personal copy of this book! In particular, it is important that you bring your own copy to each histology lab session. This printing of the histology text also includes an access code for the publisher’s online version, which may prove useful to you, although the online version is not required for the course.


  **Note:** This text book is also required for your Gross Anatomy course (ANTR 551).


  **NOTE:** The Medical Physiology and Biochemistry textbooks are also required for your Medical Biochemistry course (BMB 514) this Fall Semester; and all of these text books will also be required in PSL 535 (Spring Semester).
Specific Procedures for Histology Laboratory

Access

Locations of histology teaching labs:
- EL – Room E200 Fee Hall (across the hall from the Gross Anatomy Lab).
- GR – Room 253 Secchia Center.

The lab is computer-based at both sites; it uses virtual slides (digitized microscope slides) as well as images from other designated web sites. Students will team up (in groups of 2-3) to share the laboratory workstations. For each lab session, you will need your lab manual (contained within the course Study Guide), your required histology text (Ross and Pawlina), and your i>clicker2.

Scheduled Labs: The college will assign you to a specific 2-hour block for histology labs. This lab section assignment will also be posted on the PSL 534 D2L web site. Space and instructional support are limited in the histology lab, so it is essential that you attend only the 2-hour section to which you have been assigned; also, answers that you submit during lab quizzes will earn course credit only if you are attending the lab session to which you were assigned.

Please consult page 3 of this Protocol for information regarding lab sessions that you miss due to illnesses or emergencies; also, page 3 explains the process for seeking a permanent change in your lab session assignment.

NO After Hours Study: For security reasons, access to the computers in the histology labs may be limited except during scheduled lab sessions. Remember, however, that All laboratory materials, including the virtual microscope images, are always available on the web via any computer that has broadband internet access. The web addresses for accessing histology lab material will be posted on the PSL 534 D2L site.

Preparation for each laboratory session -- Pre-lab problem sets and Individual Readiness Quizzes (IRQs)

To make your time in histology lab productive, it is essential that you prepare beforehand. The PSL 534 Study Guide includes an Introduction to each lab session and a specific assignment for you to work through before coming to lab ("Preparation for Lab"). You should also skim through the detailed directions for the lab session in order to get an idea of what you will be expected to accomplish during the lab session.

To reinforce the importance of preparing for lab, and to allow you to verify your readiness for lab, we will post a Pre-lab Problem Set online prior to each lab session. You will access the Pre-lab Problem Sets via the LON-CAPA system (http://loncapa.msu.edu). The problem sets will be available beginning at noon on those Sundays prior to a histology lab session, and will be "due" at Noon on the day of your assigned lab session (i.e. Thursday). Successful completion of the pre-lab problem sets on LON-CAPA will contribute to your Overall Course Total and Course Grade (see "Assessment" section of this Protocol).

As further reinforcement for your lab preparation, we will begin each histology lab session with a brief Individual Readiness Quiz (IRQ), to be administered via the i>clicker2 system.
Resources to bring to each laboratory session

- **i>clicker2** In order to receive Individual Readiness Quiz (IRQ) credit, you must be present in the histology lab during the time you are assigned to take the quiz, and you must submit answers using your personal i>clicker2, which you have obtained and web-registered in accordance with directions provided by the college. IRQ answers submitted in another way (e.g. written on paper or submitted using another student’s i>clicker2) will not be accepted. Therefore, it is important that you have fresh batteries in your working i>clicker2. Failure to adhere to these policies will be considered an act of academic dishonesty and will be reported to the college administration.

- **Study Guide** – Your Study Guide provides an essential guide to the structural features you are looking for during lab and to their significance.

- **Histology textbook** – **Both the Study Guide and online lab material will** frequently refer to pertinent figures in the required histology textbook (Ross and Pawlina); so bring your histology textbook with you to lab!

Make the most of your time in histology lab

Being well prepared for each histology lab session (as directed above) and staying for the full lab time will allow you to take full advantage of the opportunity that each lab provides to work collaboratively with your classmates. The lab sessions also provide excellent opportunities for face-to-face interactions with faculty about lab material, other course content, or ancillary matters of interest. Furthermore, participating in the interactive review of questions (carried out in the last half hour of each lab session) will provide valuable preparation for questions on course exams.

Protecting the laboratory work stations

- Please do not consume food or drink while seated at a computer station.

- Please do not touch the computer monitor screens with anything other than the pointers that are supplied. No finger prints! No pens or pencils!

- During histology lab sessions, please do not use the lab computers for activities unrelated to lab work (i.e., no personal e-mail, downloads, or web surfing).
Making this Course Effective for You

You are strongly urged to:

- Consult the D2L web site frequently to see announcements and to access various study aides (e.g., follow-up to in-lab problem sets, practice exam questions, and answers to frequently asked questions).

- Complete the preparatory work assigned for each lab and lecture session; this includes working through the "Preparation for lab" assignment (in your Study Guide) and the Pre-lab Problem Sets (on LON-CAPA).

- Attend every lecture and lab session. Challenge yourself to leave each lecture with three questions written down that you intend to find answers to prior to the next lecture session. Plan to stay to the end of each lab session, in order to take full advantage of the opportunities to work collaboratively with your classmates, to interact with faculty, and to participate in the question reviews at the conclusion of lab.

- Actively annotate your Study Guide as you prepare for each class session, as each class session progresses, and also during your follow-up study.

- Complete the follow-up (supplemental) reading and self-study exercises as directed in the Study Guide and on the D2L web site.

- Thoughtfully work through the Homework Problem Sets (on LON-CAPA).

- Use the practice exam questions (posted on D2L prior to each exam) to help guide your review and preparation for exams. Do NOT wait until the day before an exam to look at these practice exam questions. Instead, start using them 3-4 days prior to each exam to help guide your review and exam preparation.

- Avail yourself of the opportunities for help provided by the course faculty -- in person, via e-mail, and at scheduled help sessions:
  
  - The time immediately before or after a course lecture is often too rushed to provide a good opportunity to get help from course instructors.
  
  - By contrast, lab sessions provide an excellent time to ask questions of course faculty. Especially if you stay to the very end of a lab session, after some students have departed, you will likely be able to get the undivided attention of a faculty member.
  
  - Also, you can contact course faculty by e-mail with your questions. Note: Whenever you pose a question by e-mail, include what you THINK the answer is. This makes it much easier for the instructor to either confirm your understanding or to see where you are going off-track.
  
  - Attend the Help Sessions, which are scheduled prior to the course exams.
Making this Course Effective for You (cont'd)

The faculty recognize that different students have different learning styles. Therefore, we try to provide several avenues to approach each concept. We also recognize that medical students vary widely in their prior training in biology (e.g., about one-third of your classmates have never had a physiology course, and about two-thirds have never had a histology course). Therefore, we try to provide “footholds” appropriate for different levels of sophistication. As a result, almost all students will find PSL 534 to be a manageable and satisfying course. However, if you are having trouble or feeling upset, we need to hear about it. Feel free to contact the Course Director (Dr. Wonderlin), the Histology Lab Leader at your campus, or any of the other course faculty with your comments, questions, or problems. What matters most is to find a way to make this course work for YOU.

Study Groups: Many students find it beneficial to study with one or more partners, and we strongly encourage this activity. Studying together can be efficient (what one student doesn’t understand, another one will), stimulating (personal interaction can help keep you focused and alert), and motivating (commitment to a partner supplements self-discipline). We encourage you to study with suitable partners. We caution you, however, to avoid study groups that turn into “gab fests” or where one or two students do all the talking. Remember, you may THINK you understand a concept when you hear someone else explain it, but you’ll KNOW you understand the concept only when YOU can explain it to someone else. So, make sure you get to talk in your study group!

Private Tutors: In past years, some students arranged for tutors to help them with their study. Although working with a tutor may be helpful to some students, it is unwise to expect a tutor to substitute for your own attendance in lecture or lab, your own note taking, or your own studying. As with study groups (see above) you should insist that your tutor allows you to do lots of talking. Also, be aware that the course faculty assume no responsibility whatsoever for errors made by tutors.

Office Hours: Although impromptu conversation (e.g. during lab sessions) and e-mail are usually the most time-efficient modes for student-faculty interaction, the course faculty will try to respond to specific requests for other, face-to-face interactions. To schedule such a meeting, please contact the relevant faculty person(s).

The bottom line: The course faculty is here to facilitate your learning. The large number of students in this course (about 200) necessitates a degree of formality. Since your schedules are very full, we must adhere rigidly to the lecture and lab times assigned to this course. However, within these constraints, the needs of individual students will be accommodated whenever possible. Please feel free to contact Dr. Wonderlin, Course Director, with any personal requests you have.
4 Misconceptions about Learning
by Stephen L. Chew, PhD
Samford University

Taken from: http://www.samford.edu/uploadedFiles/How_to_Study/Teaching_Resources.pdf

1) **Learning is fast**
   a) Most first year college students grossly underestimate the time required to complete assignments or study materially effectively.
   b) Always plan in extra time for assignments and plan to finish reading material enough in advance to allow for review

2) **Knowledge is composed of isolated facts**
   a) Students often write out definitions on note cards and memorize them as isolated facts.
   b) The problem is that good teachers test for comprehension, the meaningful relationships between the concept and other concepts.

3) **Being good at a subject is a matter of inborn talent rather than hard work**
   a) Many students believe that people naturally good or bad at a subject, such as writing, or math, or science, and there is nothing that can be done to change that.
   b) But, academic success is much more a matter of hard work than inborn talent

4) **I’m really good at multi-tasking, especially during class or studying**
   a) The research evidence is overwhelming that we are bad at multi-tasking, especially if one of the tasks takes a lot of effort and concentration, like studying.
   b) If you want to be successful, reduce or eliminate distractions while studying.

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**Evaluation of PSL 534/535**

We want your feedback. Feel free to approach the Course Director (Dr. Wonderlin), your campus Lab Leader, or any of the other course faculty with your reactions and suggestions. Even better, write down your comments and give them to Dr. Wonderlin in person, by e-mail, or by routing them through your class liaison. Your comments may be anonymous, if you wish.

We hope to get your feedback in other ways, as well. From time to time, we will convene "Focus Groups" of 5-8 students at each campus to ask, "How’s it going?" In addition, we will ask everyone in the class to complete formal, computer-based evaluations of each instructor and of the course. (The college will provide you specific instructions for accessing and completing computer-based evaluations.)

Please understand, however, that your suggestions may not lead to immediate change. In deciding what to teach and how to teach it, we rely not only on your feedback but also on the opinions of our faculty colleagues, especially those who have medical training and those who write questions for the USMLE. In addition, we pay close attention to the opinions of 2nd, 3rd and 4th –year students, residents, and clinicians. Finally, before we can make any substantial changes in course protocol or content, we are obliged to seek the advice and consent of the academic administrators and the Curriculum Committee of CHM. Important changes and improvements are being made every year in this and other courses. Often, these changes are initiated in response to students’ suggestions. However, substantive changes in medical school courses are necessarily made year-by-year, not day-by-day.
Course Waiver Policy

Due to the comprehensive and integrative nature of the Cell Biology and Physiology sequence (PSL 534/535) and due to the unlikelihood that a student will exhibit prior mastery in all aspects of the course content, waiver by examination is not offered as an option. The Course Director, Dr. Wonderlin, would consider a request for waiver on the basis of past experience, but ONLY in the case of a student who can document strong achievement in graduate-level coursework and/or substantial upper level teaching experience in all the following areas: cell biology, biochemistry, histology (including lab practical), and human physiology.

Assessment & Your Course Grade

*Your Grade is determined by your Overall Course Total based on three assessment types:*

1. **Exams:** There will be 5 exams, as outlined on the next page. Detailed information about the time, place, and content for each exam will be given on the course’s D2L web site. All exam questions will be multiple choice. Some questions will be based on simple recall or image recognition, but most will emphasize the application of concepts and problem-solving. All exams will integrate material from lectures, labs, and the assigned self-study activities. Questions will be based on Instructional Objectives (listed for each lecture and lab session in the Study Guide). Altogether, there will be 258 questions across the 5 exams worth 516 points (2 pts/question) representing **86.0%** of your Overall Course Total.

2. **Pre-lab Problem Sets.** To reinforce the importance of preparing for lab, and to allow you to verify your readiness for lab, we will post a **Pre-lab Problem Set** online (LON-CAPA system) prior to each lab session. In general, the problem sets will be available beginning Sunday at Noon for those weeks having lab sessions, and will be “due” at Noon on Thursday, the day of your assigned lab session.
   a. The Pre-lab Problem Set for Lab #1 is for practice and will not contribute to your Overall Course Total. It is intended to familiarize you with LON-CAPA.
   b. The problem sets for Labs #2 - #9 will be graded and will collectively contribute a maximum of **8.0%** to your Overall Course Total.

3. **Individual Readiness Quizzes** As further reinforcement for lab preparation, we will begin each of the histology lab sessions with a brief **Individual Readiness Quiz (IRQ),** which will be administered via the i>clicker2 system.
   a. The IRQ for Lab #1 is for practice and will not contribute to your Overall Course Total.
   b. The IRQ’s for Labs #2 - #9 will be graded and will collectively contribute a maximum of **4.7%** to your Overall Course Total. Of the eight graded IRQs, the IRQ with the lowest score will be dropped, so only seven of the eight graded IRQs will contribute to your Overall Course Total.

4. **Homework problems for the Cardiovascular Section.** The lecture content for the Cardiovascular Section is all on-line. To help you keep up with the material, there will be two sets of homework problems worth **1.3%** of your Overall Course Total.
### Summary:

<table>
<thead>
<tr>
<th>Assessment Type</th>
<th>Number of Assessments that count</th>
<th>Total Questions</th>
<th>Course points/question</th>
<th>Max Points per Assessment Type</th>
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<tbody>
<tr>
<td>5 In-Class Exams</td>
<td>all 5</td>
<td>258</td>
<td>2.0</td>
<td>516</td>
</tr>
<tr>
<td>9 LON-CAPA Pre-lab Problem Sets</td>
<td>last 8 of 9 PS #1 does not count</td>
<td>48</td>
<td>1.0</td>
<td>48</td>
</tr>
<tr>
<td>9 In-Lab IRQs (4 questions/IRQ)</td>
<td>best 7 of 8 IRQ #1 does not count</td>
<td>28</td>
<td>1.0</td>
<td>28</td>
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<tr>
<td>2 sets of homework problems for the Cardiovascular Section</td>
<td>both sets</td>
<td>8</td>
<td>1.0</td>
<td>8</td>
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**OVERALL COURSE TOTAL** 600

### Course Grade is based solely on Overall Course Total:

<table>
<thead>
<tr>
<th>Overall Course Total</th>
<th>Course Grade</th>
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<tbody>
<tr>
<td>&lt; 420.0</td>
<td>N</td>
</tr>
<tr>
<td>420.0 - &lt;450.0</td>
<td>CP</td>
</tr>
<tr>
<td>≥ 450.0</td>
<td>P</td>
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Note, it is possible to miss a P or CP by just 1 point! Rounding up will not be done and there is no “curve”. Please take advantage of all assessment opportunities in this course.

### Composition of Exams

<table>
<thead>
<tr>
<th>Exam</th>
<th>Day Date</th>
<th>Content</th>
<th>Lectures included</th>
<th>Labs included</th>
<th>Questions on exam</th>
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<tbody>
<tr>
<td>#1</td>
<td>Mon. 09/14</td>
<td>Fundamentals, Cytology, Intro Embryology</td>
<td>1-7</td>
<td>1, 2</td>
<td>45</td>
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<tr>
<td>#2</td>
<td>Mon. 10/05</td>
<td>Connective Tissue Blood</td>
<td>8-11, 12-16</td>
<td>3, 4, 5</td>
<td>45</td>
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<td>#3</td>
<td>Mon. 10/26</td>
<td>Membrane Transport &amp; Epithelial Tissue</td>
<td>17-20, 21-25</td>
<td>6, 7</td>
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<td>Nervous Tissue &amp; Cell Signaling I</td>
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<td>#4</td>
<td>Mon. 11/23</td>
<td>Skeletal Muscle</td>
<td>26-29, 30-33, 32-33, 36-37</td>
<td>8</td>
<td><strong>62^2</strong></td>
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<td>Cardiac and Smooth Muscle</td>
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<td>Autonomic Nervous System</td>
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<tr>
<td>#5</td>
<td>Tues. 12/15</td>
<td>Cardiovascular System</td>
<td>38-47</td>
<td>9</td>
<td><strong>46^3</strong></td>
</tr>
</tbody>
</table>

**TOTAL:** 258 questions @ 2pts/q = 516 points

### Footnotes on Comprehensive Questions

1- The 60 questions on Exam 3 include 6 questions based on Learning Objectives for Exam 1 and 9 questions based on Learning Objectives for Exam 2.
2- The 62 questions on Exam 4 include 10 questions based on Learning Objectives for Exam 3.
3- The 46 questions on Exam 5 include 5 questions based on Learning Objectives for Exam 4. Exam 5 does NOT have an "all-semester" comprehensive portion.

**Missed Exams or IRQs**

The process for obtaining an excused absence from a course exam is explained on page 3 of this Protocol. Unless you first obtain an excused absence and then arrange with administrative staffperson to make up the missed exam, you will receive a score of "0" for the missed exam, which will be used in the computation of your Overall Course Total.

No make-ups are offered for lab quizzes (IRQ's). Allowing for illness or emergency is why only the best seven of your eight graded Pre-lab IRQ scores (the first Pre-lab IRQ is not graded) count toward your Overall Course Total. Appeals for additional consideration for multiple missed quizzes must be accompanied by an excused absence as explained on page 3 of this Protocol and presented to Dr. Wonderlin (Course Director).

**Scoring of Exams**

Unofficial answer keys will be posted on the course D2L web site by 6pm or earlier the day of the exam. However, the grading of an exam will not be considered "official" until the faculty have analyzed student performance on each question and have carefully considered any concerns raised by students about the test. This process may take several days. Any adjustments to be made in scoring an exam will be explained on the course D2L web site. You will then receive a personalized report from the CHM Office of Preclinical Curriculum, where all scantrons are scored, which will show how your answer sheet was graded. You should look over this report carefully and notify the Course Director, Dr. Wonderlin, of any apparent errors in the grading.

**Graded Problem Sets on LON-CAPA – Expected conduct**

The Pre-lab Problem Sets on LON-CAPA are open-book exercises. Moreover, you are strongly encouraged to work collaboratively with your colleagues in preparing answers to these problem sets. However, for each graded problem set, you are expected to log onto your account on the LON-CAPA system independently, and to enter your own answers for grading. Failure to enter your own answers, yourself, or entering another student's answers for him/her will be considered to be cheating, and an act of academic dishonesty.

**Conduct of Exams**

Michigan State University has established policies on the integrity of scholarship and grades ("All University Policy on Integrity of Scholarship and Grades"). The College of Human Medicine follows these policies and additional policies and procedures as prescribed in the respective documents on "Medical Students’ Rights and Responsibilities" and the CHM Preclinical Student Handbook. The faculty, in turn, has the responsibility to insure the integrity of scholarship and grades. In order to facilitate the performance of this responsibility, the following specific policies will be followed for exams in PSL 534:

1. Students will be admitted to the examination starting 20 minutes before the exam begins. Exam entry doors will be closed 5 minutes prior to the posted start time of the exam. A student may not leave the exam room once checked in, except for the circumstances described below (food or restroom breaks).
2. Arrival time will be defined by cell phones rather than watches or wall clocks. If a student who is thought to arrive late can demonstrate to the proctor that his/her personal cell phone demonstrates an on-time arrival, s/he will be admitted to the examination.
3. Late students should follow the procedure for requesting an excused absence by submitting the “Request for Approval of Absence from Examination or Required Experience” form, which can be found on D2L and in the CHM Preclinical Student Handbook. Attach the completed form to an e-mail sent to the appropriate e-mail address: East Lansing students – absencEL@msu.edu; Grand Rapids students – absencGR@msu.edu. The request will be reviewed by the Asst. Dean and/or Director of Preclinical Curriculum. If an excused absence is granted, the student will be contacted by the curriculum assistant at his or her campus to notify him or her of the date, time, and location of the makeup examination.
4. Examination proctors will require students to present pictured identification upon entering the exam room. Bring such identification to each examination.
5. Exams will be proctored according to a proctor/test taker ratio of 1/25 with at least one faculty member and at minimum one proctor of each gender. This proctoring arrangement is a close approximation of the proctoring arrangement followed by the USMLE during the Step 1 (board) exams.
6. The examination will be distributed (at the seats), along with a scantron (bubble sheet) and an empty envelope, prior to students entering the room. An exam proctor will assign specific seating to students upon check in. Do NOT turn over the exam until instructed to do so by the lead exam proctor. You may, however, begin filling in the scantron (name, PID, etc.) as soon as you are seated. **It is highly recommended that you do so, insuring that you will have the maximum time for taking the exam itself.**

7. Upon entering, deposit all watches, books, notebooks, backpacks, outerwear (defined as any item which can be unzipped, unbuttoned, or otherwise removed without pulling over the head, provided that removal of the item does not compromise the modesty of the wearer), head wear (including hooded pullover sweatshirts), and electronic devices of any kind in the designated areas as directed by proctors. **Cell phones MUST be in the off mode and cannot be carried to your examination place.** You will not be allowed to access personal belongings other than food and drink for the duration of the exam. Any food or drink must be deposited on a table outside the exam room prior to the examination. Students may take food or beverage “breaks” during the exam, which will be “counted” as part of the exam administration time.

8. When prompted to turn over the exam and begin, the student should put the exam form number/letter on the scantron and her/his name on the exam cover page. This signifies agreement to adhere to the policies of academic honesty.

9. It is the responsibility of the student to fill out the bubbles of the scantron correctly with respect to name, PID, exam form, as well as exam answers. Scantrons without the necessary identifying information, including name, PID, and exam form may not be graded.

10. The scantron is considered the official answer sheet and will be the document that is scored. Exam booklets will NOT be scored for any reason. The submitted bubble sheet is considered the student’s final response and may not be altered or adjusted for any reason after the examination is handed in.

11. Students who want to take a break for food or drink must raise his/her hand and be accompanied by a proctor. Only one student may leave the examination room at a time.

12. Students who need a restroom break will be accompanied into the restroom by a proctor of the same gender.

13. If at any time during the exam you feel physically unable (e.g. extremely nauseous, dizzy, or otherwise acutely ill) to continue the exam, please raise your hand to summon a faculty proctor. The faculty proctor will recommend that you leave the exam. If you choose to leave, you must submit the “Request for Approval of Absence from Examination or Required Experience” form as described above for late arrival to an exam.

14. Simple, arithmetic calculators may be provided for your use during the exam sessions where you are required to solve numerical problems. No other calculators, computers, cell phones, or other electronic devices will be allowed at exams and quizzes.

15. Students must refrain from distracting behavior such as toe or pencil tapping, finger drumming, thinking out-loud, etc.. Students engaged in such activity will be instructed to discontinue it and if the behavior continues, to turn in their exam and exit the room.

16. Suspicious behaviors such as looking around the room or at others’ answer sheets must be avoided. Exam proctors have the responsibility to address such behaviors during examinations. If this occurs, a faculty proctor will be called to intervene and will address the problem with the student, document it, and contact the Assistant Dean/Director of Preclinical Curriculum, whereupon an investigation of the facts will be conducted and a meeting with the student arranged. If the behavior cannot be explained to the satisfaction of the course director and the administrator, a penalty grade for the course will be assigned by the course director.

17. At the announcement of the examination end time, the examination and scantron must immediately be placed into the provided envelope. **ANY alteration of the scantron after the end time for the examination has been announced is strictly prohibited.** Monitors will be present to enforce this policy. A student caught violating it will have his/her scantron collected and the student’s behavior reported to a CHM administrator. Under most circumstances, the incident will be considered an act of academic dishonesty with consequences according to policies of the College, including the assignment of a penalty grade for the course.
**Individual Readiness Quizzes (IRQ's) in Histology Lab – Expected conduct**

IRQ's will be administered via the i>clicker2 system. It is your responsibility to purchase an i>clicker2 and to register it on the web as instructed by the college. It is your responsibility to have your i>clicker2 in working order and to bring it to each of your assigned histology lab sessions. Your answers to IRQ's will be counted only if you submit them via your registered i>clicker2, during the lab session to which you have been assigned. As part of professional behavior, under no circumstances should you loan your clicker to another student; nor should you ever be in possession of a clicker other than your own. Answering quiz questions on behalf of another student is considered to be an act of academic dishonesty and may result in dismissal from the college.

An IRQ will be administered at the beginning of each lab session. It is your responsibility to be on time. You may be assigned to a specific seat for an IRQ, and you may be asked to change seats during an IRQ. All IRQ's are "closed book". The standards for professional behavior and academic honesty that apply to examinations are to be applied during IRQ's as well.

**The bottom line on professional behavior**

Based on many years' experience, we expect that almost all students, through their own, honest efforts, will earn passing grades in PSL 534. However, failing PSL 534 (and then having to remediate) is not the worst thing that could happen to you in this course. The worst thing would be to attempt to raise your own course score, or a classmate's score, by engaging in some form of cheating. Engaging in dishonest behavior erodes your self-respect, tarnishes the image of your class and the college, jeopardizes your medical career, and demeans the medical profession. Just don't do it!

If you have any questions or concerns about appropriate/inappropriate behavior in this course, please contact the Course Director (Dr. Wonderlin). Your communication may be anonymous, if you wish.

**Achievement, not competition**

The sole goal of the faculty is to facilitate your learning of cell biology and physiology. In all respects, the evaluation scheme for the course is set up to recognize and reward your best, honest efforts to achieve the learning objectives. No "curves" are used in grading, so there is no limit to the number of students who can earn high scores. As a result, a poor performance by another student will not benefit you in any way, whatsoever. Therefore, we expect you to cooperate with and encourage your classmates to the greatest extent possible (within the boundaries of professional integrity, of course).

We will be delighted if everyone does well in the course. However, we will not lower standards in order to "inflate" student performance. Easing standards is unfair to all concerned. It would give a false sense of accomplishment to marginal students, who would then be likely to have trouble in future courses and on Board exams. It would diminish the academic reputation of this medical school and erode the standards of the profession. It would also be an abrogation of our responsibility to the public at large, which expects expert medical care from thoroughly competent physicians. Although we will not lower standards to make things "easier", we will work with you in every other way possible to help you achieve success. Just tell us what you need.
Remediation of "N" or "CP" Grade in PSL 534

Current policies of the College of Human Medicine and Michigan State University will be followed in the remediation of "N" and "CP" grades. In particular, there will be no remediation opportunity prior to the submission of course grades.

Remediation of "N" Grade

In order to remediate an "N" grade, a student must demonstrate that he or she has met the learning objectives of the course. To do this, the student must score 75.00% or greater on the Comprehensive Remediation Exam.

Information about the content and format of the Comprehensive Remediation Exam will be sent to affected students at the end of Fall Semester. The Comprehensive Remediation Exam will be offered on January 5, 2016 at a time and location to be announced. A student must take the January remediation exam unless the student requests and receives an excused absence from the exam. A student cannot take the Comprehensive Remediation Exam more than once. If acute illness or emergency prevents a student from taking the Comprehensive Remediation Exam at the scheduled time in January, the student must obtain an excused absence from the College as directed on page 3 of this Protocol. The Makeup Comprehensive Remediation Exam will be offered in March, 2016 (during Spring Break), with date, time and location to be announced. An overall score of 75.00% or more is required to pass the Comprehensive Remediation Exam. If a student passes the Comprehensive Remediation Exam, a letter will be sent to the College indicating that the student has successfully remediated the "N" grade in PSL 534. If a student does not pass the Comprehensive Remediation Exam, a letter will be sent to the College indicating that the student was not successful in utilizing the Remediation Exam to remediate the "N" grade.

Retaking PSL534 is not an option for remediation because this course will not be taught in the Fall of 2016. Therefore, students who fail the Comprehensive Remediation Exam must meet with the Block I Director/Assistant Director for advice about the next steps. In some cases, the student will be offered the opportunity to sit for a 2nd chance remediation exam at the end of August. Eligibility will be determined by the CHM Office of Preclinical Curriculum.

Remediation of "CP" Grade

In order to remediate a "CP" grade, a student must demonstrate that he or she has met the learning objectives of the course by scoring a 75.00% or greater on the Comprehensive Remediation Exam.

Information about the content and format of the Comprehensive Remediation Exam will be sent to affected students at the end of Fall Semester. The Comprehensive Remediation Exam will be offered on January 5, 2015 at a time and location to be announced. A student must take the January remediation exam unless the student requests and receives an excused absence from the exam. A student cannot take the Comprehensive Remediation Exam more than once. If acute illness or emergency prevents a student from taking the Comprehensive Remediation Exam at the scheduled time in January, he or she must obtain an excused absence as directed on page 3 of this Protocol. The Makeup Comprehensive Remediation Exam will be offered in March, 2016 (during Spring Break), with date, time and location to be announced. If a student passes the Comprehensive Remediation Exam, a letter will be sent to the College indicating that the student has successfully remediated the "CP" grade in PSL 534, and the "CP" will be changed to a "CP/P" in the student's academic record. If a student does not score at least 75.00% on the Remediation Exam, a letter will be sent to the College indicating that the student was not successful in remediating the "CP" grade, and the "CP" will be changed to a "CP/N" on the student's record.

Retaking PSL534 is not an option for remediation because this course will not be taught in the Fall of 2016. Therefore, students who fail the Comprehensive Remediation Exam must meet with the Block I Director/Assistant Director for advice about the next steps. In some cases, the student will be offered
the opportunity to sit for a 2nd chance remediation exam at the end of August. Eligibility will be determined by the CHM Office of Preclinical Curriculum.

Michigan State University College of Human Medicine is committed to educating exemplary physicians and scholars, discovering and disseminating new knowledge, and providing service at home and abroad. The medical school is based on a set of concepts that define the provide the foundation for the curriculum: 
http://www.chm.msu.edu/About/SCRIPT.htm

- **SERVICE/**No ACGME-related competency
  - Participates in the provision of beneficial services within the community
  - Demonstrates preparation and planning to provide services which respond to community need
  - Demonstrates reflection on their participation in service activities

- **CARE OF PATIENTS/**Patient Care and Interpersonal and Communication Skills
  - Demonstrates kindness and compassion to patients and their families
  - Collects complete and accurate patient data
  - Synthesizes patient and laboratory data to formulate reasonable assessments and plans
  - Demonstrates the incorporation of patient values into illness assessment and care plans
  - Communicates effectively in writing and orally
  - Effectively counsels and educates patients and their families

- **RATIONALITY/**Practice-Based Learning and Improvement
  - Identifies personal strengths and weaknesses and develops ongoing personal learning plans
  - Demonstrates receptiveness to faculty and peer/colleague feedback as a means of facilitating personal and professional improvement
  - Locates, appraises and assimilates evidence from scientific studies related to patients’ health problems

- **INTEGRATION/**Systems-Based Practice
  - Demonstrates awareness of cost and access issues in the formulation of patient care plans
  - Demonstrates respect for all members of the health care team
  - Demonstrates understanding of and contributes to a culture of safety
  - Demonstrates knowledge of differing types of medical practice and delivery systems and their implications for controlling health care allocation and cost
  - Demonstrates knowledge of how social and economic systems in which people live impact on health, delivery of health care, and well-being.

- **PROFESSIONALISM/**Professionalism
  - Demonstrates receptiveness to feedback from faculty/peers/colleagues/team members
  - Contributes actively to group/team process
  - Demonstrates respect to patients, colleagues and team members
  - Fulfills responsibilities in courses and on clinical rotations
  - Takes responsibility for patient outcomes and is accountable to the team, the system of delivery, the patient, and the greater public.

- **TRANSFORMATION/**Medical Knowledge
  - Applies essential basic, social, clinical science and systems knowledge in the care of patients
  - Creates new knowledge through research
  - Participates in lifelong teaching and learning with peers, trainees, and patients

PSL 534 & 535 incorporates S.C.R.I.P.T. in several ways.

The first step in the Transformation of the basic biomedical science knowledge of the structure and function of cells, tissues, and organs into clinical knowledge that leads to clinical action in the care of patients is a major course goal in PSL 534/535. **Professionalism** and **Rationality** via contributions to group effort and receptiveness to peer feedback is built into lab experiences, on-line ‘open-book’ pre-lab assessments, and post-exam display sessions.

*End of "PSL 534 Course Protocol" for Fall 2015*
PSL 534 COURSE CALENDAR -- FALL 2015

VENUES:

<table>
<thead>
<tr>
<th>CHM Campus</th>
<th>Lectures &amp; Help Sessions</th>
<th>Histology Labs</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL (East Lansing)</td>
<td>A133 Life Sciences</td>
<td>E-200 Fee Hall</td>
</tr>
<tr>
<td>GR (Grand Rapids)</td>
<td>120 Secchia Ctr.</td>
<td>253 Secchia Ctr.</td>
</tr>
</tbody>
</table>

KEY TO PSL 534 LECTURE TEAM FACULTY: (in order of appearance this Fall Semester):

- **WW** = William Wonderlin, Ph.D.  Course Director/GR Lab Leader
- **JS** = Jana Simmons, Ph.D.  Lecturer
- **LC** = Lisy Colon, Ph.D.  GR Lab Co-Leader
- **FK** = Frances Kennedy, D.V.M., M.S., Laboratory Director; EL Lab Leader
- **JW** = John Wang, Ph.D.  Lecturer
- **RS** = Robert Stephenson, Ph.D.  Lecturer

  o Lectures will originate (and be simulcast from) from either East Lansing (EL) or from Grand Rapids (GR). For example, in the calendar "WW in GR" means that Dr. Wonderlin will deliver his lecture from Grand Rapids. The campus that receives the simulcast will have a faculty facilitator or substitute.

  o All PSL534-5 course faculty and staff are listed on pages 1-2 of the PSL 534 Course Protocol posted at D2L

FACILITATORS

- **RM** = Richard Miksicek
- **BU** = Bruce Uhal, Ph.D.
- **WS** = William Spielman, Ph.D.

ADDITIONAL LAB TEAM FACULTY:

- **PB** = Pat Brewer, Ph.D.
- **RT** = Ryan Tubbs, Ph.D.

Histology Labs:

- For each histology lab listed there will be two sections in East Lansing and two sections in Grand Rapids.
- For students to receive IRQ credit, they must attend the lab session to which they are assigned!

CHANGES TO CALENDAR:

Updates or modifications to this calendar will be posted on the PSL 534 D2L site and updated in the Google Calendar
<table>
<thead>
<tr>
<th>Week</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
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<tr>
<td></td>
<td>Histo Lab Open House 2:30 – 3:30 pm (for locations see table above)</td>
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<td>2</td>
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<td>11 am – Lecture #5: Fundamentals 5 of 7 – Cytology 2 of 2: Subcellular compartments &amp; Information flow (JS in GR) Facilitator in EL: AP</td>
<td>8 am – Lecture #6: 9 am – Lecture #7: Fundamentals 6 &amp; 7 of 7 – Early Embryology &amp; stem cells (LC in GR) Facilitator in EL: AP</td>
<td>8 am – Lecture #8: Connective tissue proper – 1 of 2 (WW in EL) Facilitator in GR: LC</td>
<td>11 am-12pm: Lecture and Lab Help Sessions for the two campuses (WW, JS, LC, FK) EL: A219 Clinical Center, GR: 120 Secchia</td>
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<td>SEPTEMBER 7 Holiday - LABOR DAY</td>
<td>9 am – Lecture #9: Connective tissue proper – 2 of 2 (WW in EL) Facilitator in GR: LC</td>
<td>9 am – Lecture #10: Cartilage &amp; Bone (WW in GR) Facilitator in EL: WS</td>
<td>8 am – Lecture #11: Bone (WW in GR) Facilitator in EL:</td>
<td>Pre-lab problem set DUE at noon. PM – LAB #2 – CYTOLOGY GR Lab: JS, WW, LC</td>
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<td>3</td>
<td>8:00 – 9:30 AM EXAM #1 Fundamentals, Cytology, Intro Embryology (Lectures 1-7, Labs 1-2)</td>
<td>8 am – Lecture #8: Connective tissue proper – 1 of 2 (WW in EL) Facilitator in GR: LC</td>
<td>8 am – Lecture #10: Cartilage &amp; Bone (WW in GR) Facilitator in EL: WS</td>
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<td>Noon – Post Exam #1 Display</td>
<td>Noon – Post Exam #1 Display</td>
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<td>9 am – Lecture #11: Bone (WW in GR) Facilitator in EL:</td>
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<td>Week</td>
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<td>SEPTEMBER 21</td>
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<td>8 am – Lecture #12: Blood 1 of 5 (JS in GR) Facilitator in EL: RM</td>
<td>9 am – Lecture #13: Blood 2 of 5 (JS in GR) Facilitator in EL: RM</td>
<td>8 am– Lecture #14 – Blood 3 of 5 (JS in GR) Facilitator in EL: RM</td>
<td>[Pre-lab problem set DUE at noon; PM - LAB #4 – CARTILAGE- BONE GR Lab: RT, WW, LC]</td>
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<td>5</td>
<td>SEPTEMBER 28</td>
<td>29</td>
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<td>October 1</td>
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<td>10 am – Lecture #15: Blood 4 of 5 (JS in EL) 11 am – Lecture #16: Blood 5 of 5 (JS in EL) Facilitator in EL: LC</td>
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<td>[Pre-lab problem set DUE at noon; PM – LAB #5 – BLOOD GR Lab: JS, WW, LC]</td>
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<td>6</td>
<td>OCTOBER 5</td>
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<td>8:00 – 9:30 AM – EXAM #2 CT Proper, Cartilage, Bone, Blood (Lectures 8-16, Labs 3-5)</td>
<td>9 am – Lecture #17: Transport 1 of 4 (WW in GR) Facilitator in EL: WS</td>
<td>8 am – Lecture #18: Transport 2 of 4 (WW in GR) Facilitator in EL: WS</td>
<td>9 am – Lecture #19: Epithelial structure (FK in EL) Facilitator in GR: WW</td>
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<td>Week</td>
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<td>Week</td>
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<td>11</td>
<td><strong>NOVEMBER 9</strong></td>
<td>10 am – Lecture #33: Signaling 4 of 4 (JW in EL) Facilitator in GR: WW</td>
<td>8 am – Lecture #34: Cardiac muscle (WW in GR) Facilitator in EL: AP</td>
<td>8 am – Lecture #35: Smooth muscle (WW in GR) Facilitator in EL: AP</td>
<td>Pre-lab problem set DUE at noon. PM – LAB #8 – MUSCLE GR Lab: WW, RS</td>
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<td><strong>NOVEMBER 16</strong></td>
<td>8 am – Lecture #36: ANS 1 of 2 (WW in EL) Facilitator in GR: LC</td>
<td>8 am – Lecture #37: ANS 2 of 2 (WW in EL) Facilitator in GR: LC</td>
<td>8 am – Lecture #38: CV 1 of 10 Overview (online only)</td>
<td>10 am – Noon Lecture and Lab Help Sessions for the two campuses (WW, JW) EL: A219 Clinical Center GR: 120 Secchia</td>
</tr>
<tr>
<td>13</td>
<td><strong>NOVEMBER 23</strong></td>
<td>8:00 – 9:45 AM – EXAM #4 Muscle, ANS, Signaling II (Lectures 26-37, Lab 8) including 10 questions from Exam 3 Learning Objectives</td>
<td>11 am – Lecture #40: CV 3 of 10 Cardiac Structure (online only)</td>
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<td>Holiday THANKSGIVING</td>
</tr>
<tr>
<td>14</td>
<td><strong>NOVEMBER 30</strong></td>
<td>Noon – Post Exam #4 Display</td>
<td>Noon – Post Exam #3 Display 8 am – Lecture #41: CV 4 of 10 Cardiac Action Potentials 9 am – Lecture #42: CV 5 of 10 ECG/Cardiac Cycle (online only)</td>
<td>8 am– Lecture #43: CV 7 of 10 (online only)</td>
<td>8 am– Lecture #44: CV 7 of 10 Systemic Circulation (online only) Pre-lab problem set DUE at noon. pm – Lab #9 – CARDIOVASCULAR GR Lab: WW, RS, LC</td>
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*Updated: 08-27-15 WW*
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<tr>
<th>Week</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>8 am – Lecture #45 – CV 8 of 10 Local Control of Blood Flow (online only)</td>
<td>8 am – Lecture #46: – CV 9 of 10 Extrinsic Control (online only)</td>
<td>9 am – Lecture #47 – CV 10 of 10 Integrated Responses (online only)</td>
<td>10</td>
<td>11</td>
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<tr>
<td>16</td>
<td>DECEMBER 15</td>
<td>DECEMBER 14</td>
<td>9:00 – 11:15 AM – EXAM #5 Cardiovascular (Lectures 38-47, Lab 9) including 5 questions from Exam 4 Learning Objectives</td>
<td>15</td>
<td>16</td>
</tr>
</tbody>
</table>

9 am – Noon Lecture and Lab Help Sessions for the two campuses (RS) EL: A219 Clinical Center GR: 120 Secchia