BMS 3514: Organsimal (Advanced) Physiology Description:
This is a challenging and an advance course of the BMS curriculum. It assumes all of the students have complete knowledge of the evolution of each organ systems. All systems will be reviewed briefly and advanced topics will reinforce the understanding of physiology. Action Potentials: sodium, potassium and chlorine gated systems; Primary and 2nd Messenger System; Renal and vascular countercurrent systems; Automaticity and redundancy of the Cardiovascular system; Baro and Chemoreceptors; Endocrine Control will be discussed as few of the examples of Homeostasis and its mechanisms.

Laboratory will use human subjects as well as virtual simulations to understand scientific design and deliberations. Labs will emphasize the understanding of good experimental design by critiquing primary scientific papers. This course includes in 3 hour labs, and is geared for Biology Majors and exceeds the requirement for Pre-Med courses. This course does assume the student has a strong scientific knowledge of basic lab report writing and expect students to understand logic and scientific reasoning.

Learning Outcome:
After completing this course, you should be able to:

- Demonstrate the ability to use scientific method to design experiments and interpret data in quantitative and qualitative forms.
- Evaluate the validity of scientific information in the media.
- Understand how the body maintains homeostasis.
- Separate facts from hypotheses and theories.
- Understand how each system is integrated with another to maintain homeostasis.
- Summarize how factors such as nutrition, activity-level, stress-level, drugs, and pollutants can affect human health.
- Understand how to read and understand primary research articles and interpret them.
- Predict the health consequences of the inability to maintain homeostasis.
- Understand how medical devices work; sphygmomanometer, electrocardiograph, ELISA based test strips.
- Understand how drugs interact with their receptors.
- Understand how receptors for drugs can be manipulated.
- Understand basic action potentials and how it has changed in other systems.
- Understand how muscles work and what exercise really is.
- Understand how cardiovascular system generates its own automaticity and regulates it.
- Understand how nitrogenous wastes are produced and eliminated.
- Understand how sensory systems work.
- Understand 2nd messenger systems work.
- Understand how cell mediate immunity work.

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Policies:

- **Attendance:** no more than 2 excused absences (must be (medical) excused and e-mail must be sent to instructor within 1wk of absence, prior notice preferred if possible).
  - Lateness: no more than 4 (15mins after each class period, beyond this point you will be marked absent). 2 late nesses will constitute an absence.
  - Attendance will affect your grade, so be on time and ready to work.

- **Classes will end on the very last day of class and final exam will be cumulative. Please do not expect exams to be scheduled before the last day of class.**
  - NO make-ups for missed exams
  - NO extra time for entering exams/quizzes late.
  - NO video recording of the class, however audio recording will be permitted.
  - NO curves will be offered.
  - NO extra credit or work will be offered.

- **Please read all the chapters assigned before the meeting of classes.**

- **Academic Integrity:**
  - (All syllabi must have a statement about plagiarism. Feel free to cut and paste the text below into your own syllabus.)
  - Plagiarism is the word-for-word reproduction of another writer’s work or ideas; paraphrasing without proper attribution also constitutes plagiarism. Neither will be tolerated in this class. Please see the discussion of plagiarism in the Student Guide of Academic Integrity (http://core.ls.nyu.edu/page/ls.academicintegrity) for more detailed information. Penalties for plagiarism range from a failing grade for a paper or a course to dismissal from the University.
  - The penalty for plagiarism in this class is a failing grade.

- **Students with Disabilities:**
  - Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the Moses Center for Students with Disabilities at (212) 998-4980 as soon as possible to better ensure that such accommodations are implemented in a timely fashion. For more information, see the CSD website: http://www.nyu.edu/life/safety-health-wellness/students-with-disabilities.html
  - **Moses Students:**
    - Members of Student Services must meet with me within the first 2 classes so arrangements can be made. Any students that fail to identify may not be considered for consideration.

- **Communication:** by e-mail your Professor / State full name, ID# and full course # in all correspondences.

- **Office hrs:** by appt only, please send me an e-mail so we can schedule an appropriate time for us to meet.

- **Final Exam schedules are set by the University and therefore I do not have control over this.**
  - Please DO NOT assume that the exam will be before the last possible day of the final exam schedule.
  - Please DO NOT schedule any personal events before the last possible day of the final exam schedule.
  - If you miss the final exam and have a passing grade, you WILL receive a grade of an INCOMPLETE until the final is taken.
How to study for the course:
1. Read chapters ahead
2. Learn the vocabulary
3. Take notes in class
4. Reread section of the text that corresponds to the work in class.
5. Rewrite your notes with corresponding section of the text.
6. Reread the notes in the morning before class, along with new work.
7. Get notes from colleagues and compare them to yours.

Required Texts:

- **Textbook required** for Lecture:
  - Guyton and Hall Textbook of Medical Physiology, 13th Edition
- **Lab Manual – Handouts**, distributed through group captains and NYU Classes.

- **Optional:**
  - Pocket Companion to Guyton and Hall Textbook of Medical Physiology
  - If you did not take BMS 4844, the following textbook is highly recommended
- **Any edition of the textbook is recommended**
- Due to the increase prices in textbook prices, we recommend buying the textbook from an online vendor and not at the NYU bookstore

Grading:

- Lecture: 50%; Each exam is weighed equally of total grade.
- Lab: 40%
- Group Project and Presentation: 10%

- Grade is determine as
  - A = 96% +; A- = 92 - 96; B+ = 88 – 92; B = 84 – 88; B- = 80 – 84; C+ = 76 – 80;
  - C = 72 – 76; C- = 68 – 72; D+ = 64 – 68; D = 60 – 64; F = <60
HOW TO PREPARE FOR CLASS:

1. Read ahead and prepare a Pre-lab to be handed in before you start class. The Pre-labs will be graded.
2. **You must wear a lab coat in class.** A lab coat may be rented only **ONCE** during the semester.
3. You may **NOT** wear open toed or meshed shoes at any time.
4. You must have your lab manual or a copy of the lab exercise (appropriate assignment) in class at all times.
5. **DO NOT** enter the Lab without a Teaching Assistant or a Professor being present.
6. **DO NOT** apply lip gloss, lip stick or any other lip protectors in lab.
7. **DO NOT** wear jewelry in class.
8. **DO NOT** use your cell phones or any other electronic media unless you have the consent of the Professor.
9. **DO NOT** bring food or drink into the lab.
10. Download all of the Labs **EARLY** from NYU Classes
11. All wastes used in the lab are to be considered toxic, please ask your TA how to dispose of wastes and how to clean your glassware after each lab.
12. Technical grades are based on multiple factors. Some of them include your safety conduct, behavior, lab technique, group participation, interest in lecture, time management and most importantly your leadership skills. These grades are a subjective grade from your TA and professor and are not negotiable.
13. Adhere to the safety protocol found in your preface of your lab manual and explained at the beginning of the class.
14. You must have a locker since books other than the lab manual and its related articles are the only materials that will be allowed in lab. No bags or outer coats other than lab wear will be allowed in the lab. (Except for Summer Classes)
15. **First Lab:** Download and fill out the Signed safety sheet. It will be collected on the first day of class.
16. Students should be divided into groups of 3 or 4.
17. Each group will be assigned as a clean up group on a rotating basis, please follow the TAs instruction
18. **First 15mins of the lab,** you will be administered a lab quizzes on previous lab and current lab; if you are late to class you will get a “0” for this quiz.
Lab Grading Policies:
Lab (of Total Grade): 40%

Pre Labs/Lab Reports – 90%
- The TA will grade the pre-lab scoring 0-10 scale, the pre-lab need to show a full outline for the student to perform the lab. This outline must be thorough enough that the lab manual is not needed. The TA should sign each pre-lab at the beginning of class, within 15 of class time. If the student enters the lab after 15min, they are deducted for lateness and 20% penalty will apply (so the max pt granted will be 8)
  - Lab Report Break Down
    - 20% - Background Search and Library Search – Pre-Lab
    - 15% - Experimental Design - Hypothesis
    - 20% - Result Presentation – Data Collection and use
    - 20% - Conclusion – Interpretation, Scientific Deliberation
    - 10% - Statistics - Correct usage
    - 5% - Sources of Error – Understanding errors
    - 10% - Sources – Understanding Search and Citations

Technical – 10%
- This is a strictly subjective grade determined by the Professor and the TA. Preparedness to class, helpful to others, conscientiousness, alertness and show proficiency of the techniques required in each lab.