**KIN 207 Systems Physiology**

**Course Syllabus**

# ***-*Instructor information for Kristi Meyer, DPT, SCS, ATC**

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Appointment website: https://kmeyer.youcanbook.me/

**-General Course Information**

**KIN 207, Systems Physiology** provides a fundamental survey of the complementarity of human anatomical structure and physiological function of the integumentary, nervous, muscular, endocrine, cardiovascular, respiratory, and renal systems. Special emphasis will be given to the development of a mechanistic understanding of organ system function and integrated physiological function across systems to promote homeostatic regulation in the human body. This course also provides experiential learning through laboratory activities. **Prerequisite**: sophomore standing. (Laboratory Science)

**Class Hours:** See schedule, generally daily from 9:00-11:00 am and 1:00-3:00 pm on selected afternoons

# **Location for Lecture and Lab:** Room 16, Small Life Sports Center (Exercise Physiology Lab)

**Textbook Information:**

***Required*:** - Elaine N. Marieb & Katja Hoehn, *Human Anatomy & Physiology* (9,10, or 11th ed.), Pearson Benjamin Cummings. ISBN: 978-0-321-69651-9 (masteringa&p.com website access code not required but is helpful)

***Required daily review quiz website: https://www.socrative.com/***

***Helpful web address for Online Learning Center*:** <http://www.masteringaandp.com>

**Consulting Librarian for Kinesiology:** Amy Gullen: 319-895-4240, Cole 305

[agullen@cornellcollege.edu,](mailto:agullen@cornellcollege.edu,)

**-Course Outcomes**

1. To increase understanding of the relationships between human anatomical structure and physiological function from the cellular to the systemic level, focusing on study of the integumentary, muscular, nervous, endocrine, cardiovascular, respiratory, and urinary organ systems *(well-being, knowledge)*
2. To apply basic anatomical and physiological concepts within a critical thinking framework to explain homeostatic regulatory mechanisms (acid-base balance, thermoregulation, blood pressure, maintenance of blood gases, and others) that operate within humans *(inquiry, knowledge, well-being)*
3. To provide an understanding of human physiology and homeostasis required to participate in advanced study of exercise science *(knowledge, vocation)*
4. To gain a fundamental understanding of the scientific method through experiential learning activities, including the development of research questions and rationales, data acquisition, analysis of results, and interpretation of physiological observations (*reasoning, inquiry, communication)*

*This course supports the Educational Priorities and Outcomes of Cornell College with emphasis on knowledge, well-being, inquiry, and reasoning, vocation and communication.*

**-Course Content**

1. **Handouts:** Handouts, lecture slides, assignments, and other course materials will be posted on Moodle and masteringandp.com. (*knowledge, communication)*
2. **Exams:** There will be one Mid-Term Exam (worth ~60 points, 25% of the final grade) and one non-cumulative Final Exam (worth ~60 points, 25% of the final grade). Make up exams will not be given except under extreme, extenuating circumstancesand must be previously approved and arranged. (*knowledge, reasoning, communication)*
3. **In-Class Quiz:** There will be one in-class quiz worth ~35 points (10% of final grade), and daily review quizzes (5-10 points each) using Socrative website. (*knowledge, reasoning, communication)*
4. **Laboratory Exercises:** There will be four major laboratory activities focusing on investigation of neuromuscular function, cardiovascular function, ventilatory function, and renal function (worth 25 points each; all four labs comprise 20% of final grade). (*knowledge, well-being, inquiry, reasoning, vocation, communication)*
5. **Assignments & Case Studies:** Up to 300 points will be awarded for completion of various in-class and homework assignments and case studies. (*knowledge, inquiry, reasoning, vocation, communication)*
6. **Daily Attendance & Participation:** up to 5% of the final grade is dependent upon a student’s daily participation of course activities, the quality of submitted coursework, and general attendance. (*vocation, communication)*

*This course supports the Educational Priorities and Outcomes of Cornell College with emphasis on knowledge, well-being, inquiry, and reasoning, vocation and communication.*

***-Assessment of Student Learning***

The following activities will be used to assess student learning:

|  |  |  |
| --- | --- | --- |
|  | ***Point Value*** | ***Weighted Percentage of Final Grade*** |
| Mid-Term Exam | ~60 | 25% |
| Final Exam | ~60 | 25% |
| In-Class Quiz | 35 | 10% |
| Assignments and Case Studies | various, ~300 points total | 15% |
| Laboratory Exercises  (4 @ 25 points) | 100 | 20% |
| Daily Attendance & Participation |  | 5% |
|  |  | **100 %** |

The following grading scale (% Grading Scale = Points Awarded/Points Possible) will be used to determine Final Grades for this course:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B+ = 87-89% | C+ = 77-79% | D+ = 67-69% |  |
| A = 93-100% | B = 83-86% | C = 73-76% | D = 63-68% | F = < 60% |
| A- = 90-92% | B- = 80-82% | C- = 70-72% | D- = 60-62% |  |

**-Course Policies**

1. **Learning Expectations:** Successful completion of KIN 207 requires a significant time commitment, both in and out of the classroom. Students are expected to attend all class meetings (see Attendance Policy below). Additionally, *students are expected to spend a significant amount of time daily: a) reading the text to prepare for upcoming lectures, b) completing homework and laboratory assignments and* quizzes*, and c) reviewing lecture notes*.

Students are also encouraged to ask questions when a more detailed explanation for anatomical or physiological concepts is needed—ideally “lecture” would include two-way communication between students and the professor to promote discussion and the sharing of ideas rather than a formal lecture with little opportunity for student-professor interaction. This is best facilitated by students coming to class prepared to discuss ideas and ask questions about unclear concepts (and also contributes favorably towards receiving the full amount of credit for “Daily Attendance & Participation,” 5% of the final grade).

1. **Attendance:** Successful completion of KIN 207 is highly dependent upon daily attendance and active participation in course activities. Please inform me ahead of time if you will not be attending class. Unexcused absences (and other poor classroom behaviors) will adversely affect the “Daily Attendance & Participation” component of the final grade. A final grade of “F” will be assigned upon accumulating 3 or more unexcused absences.
2. **Make-up Policy:** Students are allowed to make up coursework missed due to an excused absence. There are two main criteria for determining whether or not a student may make up missed coursework: *first,* the student misses class due to a College-approved excuse (considered an “excused absence”, mandatory attendance at a college-sponsored event, documented medical excuse); *second,* the student makes arrangements to make up the missed coursework prior to the absence. It is the student’s responsibility to contact me about making up coursework and to provide documentation for the absence.
3. **Late Assignments:** Assignments turned in following the due date and time will not be accepted without prior approval. In the event a student has approval to submit late coursework, a 1% per hour grade reduction will be imposed. The late penalty is waived for excused absences.
4. **Professionalism:** It is expected that students will exhibit behavior appropriate for a professional in the career field for which the student is preparing to enter. This includes displaying respect to other students, addressing your instructor and guest instructors by the appropriate title (Dr., Professor, etc.), and observing and adhering to the policies outlined by the Kinesiology Department during use of laboratory equipment and facilities. The professor reserves the right to excuse any student who displays a disruptive attitude toward other students or the professor, as allowed by guidelines set forth in the Faculty Handbook. Professionalism is also expected in regard to use of technology in the classroom. Computers and tablets are allowed and encouraged if used for educational purposes. **Students are expected to arrive for class on time and *turn off* cell phones prior to class.** The Professor reserves the right to remove cell phones or other technology if they become disruptive to the class.
5. **Withdrawal from the Course:** According to Cornell College guidelines, students may withdraw from this course on the 15th day of the block assuming that they meet specific criteria as listed in the Course Catalogue. This option is available for the student who has made a *good faith effort* to perform well in class, as demonstrated by consistent attendance and participation in course activities and completion of all assignments.

-**Honesty in Academic Work**

Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his work unless there is a citation of a specific source. If there is no appropriate acknowledgement of sources, whether intended or not, this may constitute a violation of the College’s requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in *The Catalogue,* under the heading “Academic Honesty.”

**Cheating** refers to the use of unauthorized sources of information on examinations or any attempt by students to deceive the evaluator of an examination, paper, or project.

**Plagiarism** is the act of taking the work of another and presenting it as one's own, without acknowledgement of the original source.

**-Students with Disabilities**

Cornell College is committed to providing equal educational opportunities to all students. Cornell College makes reasonable accommodations for persons with disabilities. Students should notify the Coordinator of Academic Support and Advising and their course instructor of any disability related accommodations within the first three days of the term for which the accommodations are required, due to the fast pace of the block format.  For more information on the documentation required to establish the need for accommodations and the process of requesting the accommodations, see <http://www.cornellcollege.edu/academic-support-and-advising/disabilities/index.shtml>."

**Contact**: Brooke Paulsen, Coordinator of Academic Support & Advising

Phone: 319-895-4382 Office: Library 309

**-Statement of Diversity and Inclusion**

Cornell College values diversity and strives to create a welcoming community in which all individuals are respected and included. We support respectful and meaningful inquiry across actual or perceived differences. These differences include ability, age, appearance, athletics and student organization involvement, ethnicity, family/marital status, gender, gender expression, immigration status, language, military/veteran status, nationality, political ideology, race, religion/spirituality, sex, sexuality, socio-economic status, and other personal identities and experiences.

We live in an increasingly interconnected world. The ability to include, communicate, cooperate, and collaborate with diverse individuals is important. To that end, we engage in dialogue around issues of difference, identity, and ideology in the classroom, residence halls, and throughout campus. We embrace diversity, and as a result our viewpoints are enriched and our community strengthened.

The entire campus community is called upon to play a role in Cornell College’s commitment to diversity and inclusion. Cornell will continue to evolve into a more inclusive and equitable campus that is committed to civic and social responsibility through the collaboration of the President, Diversity Committee, students, faculty, and staff.

* **Freedom of Expression and Civil Discourse Statement**

Cornell College is an institution of higher education that aspires to develop lifelong learners and engaged citizens. Consistent with that mission, we strongly endorse freedom of speech, as articulated in the First Amendment, as an inherent right of individuals to express themselves. Expression and personal identity are inextricably intertwined. Further, while freedom of speech and expression are accorded constitutional protection in our civic life, the value of free expression must be given even more rigorous affirmation in an intellectual community that prizes liberal education, academic freedom, and critical thinking.

As a small, residential community of persons with diverse identities and backgrounds, Cornell is also committed to maintaining an inclusive campus climate and emphasizes the importance of communication and cooperation between individuals who hold different perspectives, opinions, and identities. Civil discourse refers to the inherent responsibility of individuals to engage respectfully with the intent to foster understanding. In a community like ours, civil discourse is highly valued, as it guides the approach all individuals should take in order to achieve an inclusive campus.

Therefore, we expect that community members, when engaging in civil discourse, will approach each other with:

1. **The intention to understand**—The process of civil discourse places responsibility on both the speaker and the listener to be willing to learn, acknowledging that neither one has all of the answers. It can be messy, involves risk, and is ultimately rewarding. Active listening and asking thoughtful questions are key components.
2. **Respect for the inherent dignity and worth of every person**—Civil discourse means that we recognize that all persons, regardless of differences and disagreements, have inherent dignity, worth, and their own unalienable right to freely express themselves.
3. **Commitment to learning and appreciation for critical thinking**—Freedom of speech is fundamental for learning, critical inquiry, and growth as an individual and as a community. Civil discourse involves thinking critically about all ideas, opinions, and identities one encounters. The invitation to think critically is meaningless unless diversity of opinion and perspective is not only respected but actively sought out.
4. **Empathy**—A critical component of civil discourse is empathy. In practicing empathy, each individual involved attempts to understand the feelings, experiences, and perspectives of another.

Tentative Class Schedule

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Morning Session 9:00-11:00 am** | **Afternoon Session 1:00-3:00 pm** | **Assignment Due Dates:** |
| Mon  Aug 27 | All Campus Convocation (9-9:15)  Course Introduction  Orientation to the Human Body & Homeostasis (Ch 1:1-11) |  |  |
| Tues  Aug 28 | ***Review*** Atoms, Molecules, Cells, & Tissues (Ch 2, Ch 3:61-96, skim Ch 4) | ***Continue review*** Atoms, Molecules, Cells, & Tissues |  |
| Wed  Aug 29 | **Integumentary System** (Ch 5) | **Nervous System**: Organization & Neuron Structure Resting Membrane Potential, Action Potentials, & Synapses, (Ch 11:386-414) | **Moodle Assg 1 (Basic Science)-** Due 9am  **Moodle Assg 2 (Integumentary)-** Due 1pm |
| Thurs  Aug 30 | ***In-Class Quiz (Ch 1-5)***  Continue Ch 11 | **Case Study 1:**Going Under the Knife  **Nervous System**: Overview of the Central Nervous System (Ch 12:429-451, 462-477) |  |
| Fri  Aug 31 | **Nervous System**: Peripheral Nervous System (Ch 13: 435-492, 501-503)  Autonomic Nervous System (Ch 14)  **Case Study 2:** Leg on Fire |  | **Case study 1** |
| Mon  Sept 3 | **Muscular System**: Skeletal Muscular Tissue Structure (Ch 9:276-285) | **Muscular System**: Contraction of Skeletal & Smooth Muscle (Ch 9: 284-296, 298-302, 305-311) | **Moodle Assg 3 (Nervous)**  **Case Study 2** |
| Tue  Sept 4 | **Muscular System**: Contraction of Skeletal & Smooth Muscle (Ch 9: 284-296, 298-302, 305-311), Spinal Reflexes (Ch. 13: 513-519) | **LAB 1 – Neuromuscular Function** | **Moodle Assg 4 (muscular)** |
| Wed  Sept 5 | **Case Study 3:** Overheated  **Endocrine System** (Ch 16: 592-598, primarily)  Blood Glucose Homeostasis, Ca+2 Regulation | **Optional Midterm Review** | ***Lab 1***  **Moodle Assg 5 (Endocrine) –** Due 1pm |
| Thurs  Sept 6 | ***MID-TERM EXAM***  (Muscular, Nervous, & Endocrine Systems) |  | **Case study 3** |
| Fri  Sept 7 | **Cardiovascular System**: Blood (Ch 17: 634-649)  **Case Study 4:** Fatigued |  |  |
| Mon  Sept 10 | **Cardiovascular System**: Heart (Ch 18) | Continue Ch 18 | **Case study 4** |
| Tues  Sept 11 | **Cardiovascular System**: Blood Vessels & Blood Pressure (Ch 19:698-711)  **Case Study 5:**Crimes of the Heart | **LAB 2 – Cardiovascular Function** | **Moodle Assg 6 (Cardiovascular)** |
| Wed  Sept 12 | **Respiratory System**: Ventilation (Ch 22:802-824)  **Case Study 6:**I can’t stop coughing | **Respiratory System**: Gas Exchange & Transport (Ch 22:824-841) | **Lab 2**  **Case study 5** |
| Thurs  Sept 13 | **LAB 3 – Respiratory Function** | **Renal System**: The Nephron (Ch 25:958-982)  **Case Study 7:** Max’s Maximum | **Moodle Assg 7 (Respiratory)** |
| Fri  Sept 14 | **Renal System**: Fluid & Electrolyte Balance (Ch 26)  **Case Study 8:** The Car Accident |  | **Lab 3**  **Case study 7** |
| Mon  Sept 17 | **LAB 4 – Renal Function** | **Cadaver Lab?** | **Moodle Assg 8 (Renal)**  **Case Study 8** |
| Tuesday  Sept 18 | Review of Integrated Physiological Function & Homeostatic Control Mechanisms |  | **Lab 4** |
| Wed  Sept 19 | ***FINAL EXAM***  (Cardiovascular, Respiratory, & Renal Systems) |  |  |