NJIT BIOLOGY

Course Syllabus

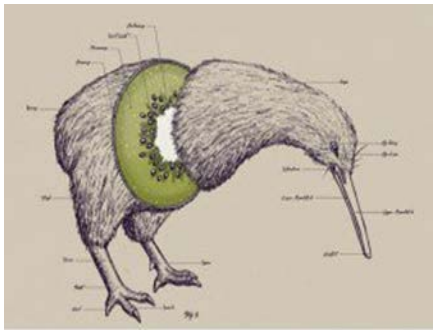
FALL 2016

BIOLOGY 285(001-005): COMPARATIVE VERTEBRATE ANATOMY

INSTRUCTOR:	Dr. Brooke Flammang-Lockye	**EMAIL:**	flammang@njit.edu
OFFICE:	428K Central King Bldg.	**OFFICE HOURS:**	W: 10:30AM –11:30AM or by appointment
COURSE SCHEDULE:	M, W: 11:30AM – 12:55PM ▪ CKB 204	**COURSE WEBSITE:**	http://moodle.njit.edu/

COURSE DESCRIPTION:

This course introduces students to the groups of vertebrates and explores the anatomical evolution of vertebrates within the context of the functional interrelationships of organs and the changing environments to which vertebrates have adapted. An ideal entry point into the ways living creatures interact with their immediate physical world, we examine how the forms and activities of animals reflect the materials available to nature and consider rules for structural design under environmental forces.



COURSE PREREQUISITES: BIOL 200 and BIOL 205/206

Required Materials: Colored pens/pencils and paper for notetaking.

Required Texts:

- Liem, Karel et al. (2001) Functional Anatomy of the Vertebrates, Third Edition. Brooks Cole. ISBN: 978-0030223693
- Subin, Neil (2008) Your Inner Fish: A journey into the 3.5 billion-year history of the human body. Pantheon Books. ISBN: 978-0375424472
- Gilbert, Stephen. (1973) Pictorial Anatomy of the Dogfish. University of Washington Press. ISBN: 978-0295951485
- Gilbert, Stephen. (1975) Pictorial Anatomy of the Cat, Revised Edition. University of Washington Press. ISBN: 978-0295954547

CLASS POLICIES:

Cell Phones: The use of cell phones during class or exam times is prohibited.

Makeup Exam Policy: There will be no makeup exams, except in rare situations where the student has a legitimate reason for missing an exam, including illness, death in the family, accident, requirement to appear in court, etc. The student must notify the Biological Sciences office and the Instructor that he/she will miss an exam. In all cases, the student must present proof for missing the exam TO THE DEAN OF STUDENTS OFFICE, e.g., a doctor's note, police report, or court notice, etc., clearly stating the date and times.

Academic Integrity: Students are reminded of the Honor Code each one has agreed to abide by (at Rutgers or NJIT). Violations of Academic Integrity will be dealt with according to the guidelines indicated in the NJIT Academic Honor Code (http://www.njit.edu/education/pdf/academic-integrity-code.pdf). Please re-read Article III of the Honor Code (page 4), which describes conducts that are considered unacceptable (cheating, violating the US Copyright law, etc). Rutgers has similar rules (http://www.ncas.rutgers.edu/oas/ai).

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GRADING POLICY:

COMPONENT	PERCENT
Participation	20%
Midterm Exam	20%
Presentation/Discussion Leader	20%
Robot Project	20%
Final Paper	20%
TOTAL	**100%**

GRADING SCALE	
A	90-100
B+	83-89
B	73-82
C+	65-72
C	60-64
D	50-59
F	0-49

LEARNING EXPECTATIONS AND ASSESSMENT:

In this course, students will learn to:

1. Demonstrate the role of physics in the life of biological organisms
2. Identify parameters important to the function of physiological systems
3. Define anatomical structures in fish, reptiles, and mammals
4. Identify homologous structures in different organisms
5. Diagram the forces acting on skeletal structures to generate motion of an organism
6. Explain the factors that influence stability of a physiological structure
7. Explain the ontogenetic and evolutionary changes to the nervous, respiratory, circulatory, digestive, and urogenital systems as organisms adapted to new ecological niches and physiological needs over time

COURSE OUTLINE:

DATES	LECTURE TOPICS	LAB	READINGS
Sept. 7	The Evolution of Vertebrates		FAV: 1-3, 22
Sept. 12,14	Embryology		FAV: 4
Sept. 19,21	Cranial Skeleton	LAB 1: Skeletal system I	FAV: 7
Sept. 26,28	Postcranial: Axial & Appendicular Skeleton	LAB 2: Skeletal system II	FAV: 8, 9
Oct. 3,9	Muscular System	LAB 3: Muscular System I	FAV: 10
Oct. 10,12	Functional Morphology & Biomechanics	LAB 4: Muscular System II	FAV: 5, 11
Oct. 17,19	**MIDTERM EXAM (W 19 Oct)**	Field trip to the AMNH	
Oct. 24,26	Nervous 1: Sense Organs & the Brain	LAB 5: Biomechanics	FAV: 12, 14
Oct. 31,Nov. 2	Nervous 2: Spinal Cord & Peripheral Nerves	LAB 6: Nervous System	FAV: 13
Nov. 7,9	Respiratory System	LAB 7: Respiratory System	FAV: 18
Nov. 14,16	Circulatory System	LAB 8: Circulatory System	FAV: 19

Nov. 21,23	Digestive System	LAB 9: Digestive System	FAV: 16, 17
Nov. 28,30	Urogenital System	LAB 10: Urogenital System	FAV: 20, 21
Dec. 5,7	Case Studies	**Review**	
Dec. 12	**Exam Review**	**LAB PRACTICAL**	
FINALS	**FINAL EXAM WEEK: DECEMBER 16-22, 2016**		