###### Course Syllabus

01-070- 387

Primate Life History and Energetics

The life history of a species is the manifestation of how the species has adapted to their environment to maximize reproductive success. Research focusing on primate life-history evolution has revealed that, relative to other mammalian species, primates have slow life histories, including longer gestation and lactation periods, resulting in extended periods of juvenile dependency. Furthermore, most primate species live in tropical environments, which are characterized by unpredictable food availability, particularly for frugivorous species. This course will investigate variation in primate life histories, what conditions lead to the evolution of specific life history adaptations, and how energetic availability within a habitat will cause variation in primate life histories. The class will combine lecture and discussion, focusing on the mechanisms and reasons that drive life history adaptations.

Class hours: Monday-Thursday, 8:30am – 11:25am

Classroom: Hickman 123

**Instructor:**

Tim Bransford

[tim.bransford@rutgers.edu](mailto:tim.bransford@rutgers.edu)

Office: Biological Sciences 301A

Office hours: TBD

###### Pre/Co-requisites

01:070:102 or permission from instructor

###### Required text

There is no required textbook for this course. Required readings consist of selected publications which will be posted on Sakai.

###### Learning objectives

• Understand variation in primate life history characteristics

• Develop knowledge about the relationship between environment and life history

• Develop knowledge about why there is life history variation within a species

• Apply life history knowledge of extant primates to human ancestors

###### Exam and assignments structure

Weekly write-ups (3) 50%

Pop-quizzes 15%

Final presentation and write-up 25%

Course participation and attendance 10%

Weekly write-ups: At the beginning of the Monday class period, students will submit a 1.5-page, single-spaced, one-inch margin, summary and discussion of what we covered in class the week before. The primary topic of the write-up is at the discretion of the student, as long as it was covered during the previous week. Write-ups must contain at minimum three scientific references from the class reading assignments and include a Literature Cited page in addition to the two-page write-up.

Pop-quizzes: There will be at 5 pop quizzes during the course. These will be short, 10 minute quizzes that will be a mix of short-answer and multiple-choice questions covering the topics discussed in class and the reading assignments.

Final Presentation: The final presentations of the course will take place on the final class day. Each student will pick a primate taxon during the first week of the course, then develop a 20 minute presentation about the life history of the taxon. Additionally, the student will create a summary of the topic, using at minimum 10 references, and submit it on the final day of the course.

Course participation: There will be discussion components in this course and it is expected that everyone participates. I will take note of those not participating and they will lose credit depending on how inactive they are. Additionally, I will take attendance for the class and will deduct a point from the participation grade for every unexcused absence. It is very important you communicate with me about missing class! I understand life happens, so it is always better to communicate ahead of time or quickly thereafter if you miss class. If it is reasonable, I will understand and work with you on the situation without penalty to your grade.

If you require additional time or alternative accommodations on exams please contact the Office of Disability Services for Students at <http://disabilityservices.rutgers.edu/> to obtain the Letter of Accommodation. Please, present the letter either to the TA or to the instructor at least two weeks prior the exam.

**Course Policies**

Attendance: Students are expected to attend all class sessions. Please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence (an automatic email notification will be sent to the course instructor). An absence note from the Dean (of the student’s School or College) or compelling evidence is required for each following absence.

Makeup work: Students will be allowed to makeup work only if they provide a letter from the Dean (of their School or College) verifying that the reason for missing the scheduled session was justifiable.

Academic integrity: There will be no tolerance of academic dishonesty of any kind. All students must strictly follow the Rutgers University Academic Integrity Policy. Please refer to <http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers> .

**Course Schedule** (subject to change as the semester goes on)

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| Week | Session Topics |
| 1 | May 31: Introduction to the course; How to find and cite references  June 1: What variables are important for life history?  June 2: Should we study male and female differently? |
| 2 | June 6: Write-up 1 due, How to conduct primate life history research?  June 7: Energy in the environment and primate life history variation, seasonality  June 8: Life history and social behavior  June 9: Strepsirrhine life history |
| 3 | June 13: Write-up 2 due, Monkey history, part 1  June 14: Monkey life history, part 2  June 15: Ape life history, part 1  June 16: Ape life history, part 2 |
| 4 | June 20: Write-up 3 due, Infant care and life history  June 21: Extinct hominins  June 22: What is the future of primate life history research? conservation  June 23: Final presentations and summaries |

**Sample Readings:**

Aiello LC, Key C. 2002. Energetic Consequences of Being a *Homo erectus* Female. American Journal of Human Biology 14: 551-565.

Knott CD. 2005. Energetic responses to food availability in the great apes: implications for hominin evolution. In: Brockman DK, van Schaik CP, editors. Seasonality in Primates: Studies of living and extinct human and non-human primates, Pp. 351-377.

Pontzer H, Raichlen DA, Gordon AD, Schroepfer-Walker KK, Hare B, O’Neill MC, Muldoon KM, Dunsworth HM, Wood BM, Isler K, et al. 2014. Primate energy expenditure and life history. Proceedings of the National Academy of Sciences 111: 1433-1437.

van Noordwijk. 2012. From Maternal Investment to Lifetime Maternal Care. In: Mitani JC, Call J, Kappeler PM, Palombit RA, Silk JB, editors. The Evolution of Primate Societies. Chicago: University of Chicago Press. Pp 321-342.

**Recommended Reading:**

*Primate Life Histories and Socioecology*

By: Peter M. Kappeler and Michael E. Pereira

2003, University of Chicago Press

ISBN-13: 978-0226424644