Georgia Institute of Technology
School of Applied Physiology

APPH 8000-A Seminar in Applied Physiology

(Scientific Research Methods in Applied Physiology)

Instructor: Prof. Minoru "Shino" Shinohara
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Office Hours: By Appointment

Class Location: Room 1103 in AP Building

Class Time: Wednesdays, 2:05 - 4:55pm (may vary if necessary)

General Course Description:
The main purpose of this seminar is to learn the scientific research process in Applied Physiology. This will include a review of the literature, generation of a hypothesis, and development and presentation of a research plan. Students will also be expected to attend School seminars.

Textbooks: No textbooks are required.
Suggested reading: Ted Baumgartner, Larry Hensley. Conducting and Reading Research in Kinesiology. 5th Edition, McGraw-Hill, 2012. (or 4th Edition)
Other reading materials will be provided.

Presentation and written report:
Students will pick a topic and develop and present a research proposal in oral and written forms.

Course Grading:

Class active participation:	45%
Presentation (Dec 4th):	20%
Written report (Due Dec 9th)	35%
Total	100%

Semester Schedule (tentative)

Week 1: 8/21	Introduction to Scientific Research
Week 2: 8/28	Scientific Research Process
Week 3: 9/4	Reviewing Literature
Week 4: 9/11	Developing Research Plan
Week 5: 9/18	Data Analysis and Interpretation
Weeks 6-13: 9/25-11/13	Current Research Methodologies and Topics in:
Week 6: 9/25	Channel Regulation: Balog
Week 7: 10/2	Spinal Neural Circuits: Nichols
Week 8: 10/9	Hydration/Nutrition and Performance: Millard-Stafford
Week 9: 10/16	Neuromusculoskeletal Modeling: Prilutsky
Week 10: 10/23*	Kinematics of Motion: Chang
Week 11: 10/30	Adaptations in Muscle Cell: Burkholder
Week 12: 11/6	Supraspinal Neural Activity: Wheaton
Week 13: 11/13*	Rehabilitation Science: Sprigle

* Date and time may differ from the regular class time.

In 2-week advance, instructors will provide 1) reading materials for understanding current research methodologies and 2) recent original papers of hypothesis-driven mechanistic studies for introducing current research topics (likely including the ones in the instructor's lab) in their respective field. During the class, instructors will explain research methodologies and their concept, and current and potential future research topics in the field will be discussed.

Week 14: 11/20	Presenting Study and Developing Proposal
Week 15: 11/27	(Thanksgiving recess)
Week 16: 12/4	Student Presentation