Instructor:
Dr. Michelle Harris-Love
- E-mail: mharri36@gmu.edu
- Phone: 703-993-3590
- Office: Nguyen Engineering Building, Room 2611
- Office hours: By appointment

Lectures:
- Thursday, 1:30 – 4:15 p.m.; Innovation Hall Rm 316

Important Notes and Dates:
- Final Exam: Thurs. December 14, 1:30 pm – 4:15 pm
- Holidays: November 22nd-26th (Thanksgiving Break)

Required Readings:
- Articles and book chapters as assigned in class

Recommended Textbooks:

Course Description:
This course uses approaches from robotics, control theory, and neuroscience to understand biological motor systems. Contents include modeling muscles, reflexes and neural systems to understand how the central nervous system plans and controls movement of the eyes and limbs. The theoretical control problem is compared to known neuronal properties of the motor system and diseases of the motor system affecting movement control.

Course Objectives
By the end of the course, students will be able to (1) describe the basic and more advanced principles of human movement, (2) explain the neural and physical components of biomechanics and motor control and learning, (3) discuss different motor control and learning theories and their implications for bioengineering interventions, and (4) discuss the source and nature of motor control disorders.
Assignments, Examinations and Grading:

Quizzes: 5 quizzes, 10 points each

Exams: 3 exams, 50 points each

Attendance and Class Participation:

<table>
<thead>
<tr>
<th>50 points</th>
<th>40 points</th>
<th>30 points</th>
<th>20 points</th>
<th>10 points</th>
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<tr>
<td>Never misses classes</td>
<td>Rarely misses classes</td>
<td>Sometimes misses classes</td>
<td>Absent for most classes</td>
<td>Rarely attends classes</td>
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<tr>
<td>Never misses meetings</td>
<td>Rarely misses meetings</td>
<td>Sometimes misses meetings</td>
<td>Absent for most meetings</td>
<td>Rarely attends meetings</td>
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<tr>
<td>Actively contributes to the discussion</td>
<td>Semi-actively contributes to the discussion</td>
<td>Sometimes contributes to the discussion</td>
<td>Rarely contributes to the discussion</td>
<td>Never contributes to the discussion</td>
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Final Presentation: 50 points

Grading Structure:
- The final grade will be based on (Tentative, subject to change):

  Quizzes (5 quizzes, 10 pts each) 50 points
  Class Preparation & Participation 50 points
  Exam I 50 points
  Exam II 50 points
  Final Presentation 50 points
  Final Exam 50 points
  **Total Points** 300 Points

- Letter grades will be based on a 10 point scale ([90, 100] = A, [80, 90] = B, …)

Grading Scale:

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<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>97-100%</td>
<td>A +</td>
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<tr>
<td>93-97%</td>
<td>A</td>
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<td>90-93%</td>
<td>A -</td>
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<tr>
<td>87-90%</td>
<td>B +</td>
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<tr>
<td>83-87%</td>
<td>B</td>
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<tr>
<td>80-83%</td>
<td>B -</td>
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<td>70-73%</td>
<td>C - *</td>
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<td>60-70%</td>
<td>D *</td>
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<td>0-60%</td>
<td>Failing *</td>
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Policies and Resources for Students:

- **Attendance and Participation**
  Attendance to each class session is expected and essential for success. Each student is responsible for any work/assignments missed. Makeup quizzes and exams will **NOT** be given. If a student is tardy for class or leaves early during which time a quiz is given, that quiz can **NOT** be made up and will result in a zero for that grade.

  Regarding electronic devices (such as laptops, cell phones, etc.), please be respectful of your peers and your instructor and do not engage in activities that are unrelated to class. Such disruptions show a lack of professionalism and may affect your participation grade.

- **Religious Holiday Policy**: It is the policy of GMU to afford students, on an individual basis, the opportunity to observe their traditional religious holidays. Students desiring to do so must provide written notification to each instructor by the end of the second week of classes in order to be excused from class without penalty.

- **Class Materials** This course is on Blackboard and students are expected to access information and resources related to the course through Blackboard.

- **University Honor Code** All GMU students must adhere to the guidelines of the George Mason University Honor Code Code [See http://academicintegrity.gmu.edu/honorcode/]. It is the student's responsibility to ask course instructors to clarify expectations for each assignment in order to ensure compliance with the Honor Code.

  - Students must follow the university policy for Responsible Use of Computing [See http://universitypolicy.gmu.edu/all-policies/].

  - GMU Student Conduct Policy According to university policy, students are expected to conduct themselves in an orderly and cooperative manner (refer to the GMU University Policies and Procedures). Students are expected to exhibit professional behaviors and dispositions at all times.

**Core Values Commitment:**

- Along with the College of Education & Human Development, Volgenau School of Engineering is committed to collaboration, ethical leadership, innovation, research--based practice, and social justice. Students are expected to adhere to these principles. [See http://cehd.gmu.edu/values/].
Other Assistance and Resources:

- **Americans with Disabilities Act** Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 requires GMU to provide adjustments or accommodations for students with documented disabilities. Students seeking academic adjustment or accommodations **must** self-identify with Mason’s Disability Services (http://ods.gmu.edu). All academic accommodations must be arranged through Disability Services. Students with disabilities who seek accommodations in a course must be registered with the George Mason University Office of Disability Services (ODS) and inform their instructor, in writing, at the beginning of the semester [See http://ods.gmu.edu/].

- **The George Mason University Writing Center** staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing [See http://writingcenter.gmu.edu/].

- **WAVES: Wellness, Alcohol and Violence Education and Services:** WAVES promotes wellness within the Mason community through health education, alcohol/drug assessment and education, and violence awareness, prevention and sexual assault response. We help students make healthy, safe choices and encourage lifelong, thoughtful healthy decision-making through individualized support, creative programming, and evidence-based education and outreach.

  **WAVES office: SUB I, Suite 3200; 703-993-9999**
  24-Hour Sexual and Intimate Partner Violence Crisis Line 703-380-1434; waves.gmu.edu

- **CAPS: Counseling and Psychological Services:** Counseling and Psychological Services (CAPS) provides a wide range of free confidential services to students, faculty, and staff. Services are provided by a staff of professional clinical psychologists, social workers, counselors, learning specialists, and psychiatric providers. CAPS individual and group counseling, workshops, and outreach programs are designed to enhance students’ personal experience and academic performance.

  Visit us at caps.gmu.edu for additional resources.
  - For consultation or emergency assistance during office hours call 703-993-2380.
  - For assistance during non-office hours, call University Police at 703-993-4357.

- **Student Health Services (SHS):** Provides confidential health care to enrolled students in emergency and non-emergency circumstances on the Fairfax, Arlington and Prince William campuses. If there is a medical emergency and Student Health Services (SHS) is closed, please contact the free after-hours nurse ((703) 993-2831), a hospital emergency room, an urgent care facility, or call 911.

  **SUB 1, Suite 2300; 703-993-2831**

- **University Police:**

  Emergency: 911  Non-Emergency: (703) 993-2810
  Reporting a Crime (Crime Solvers Anonymous Tip Hot-Line): (703) 993-4111
  Mason Police Website: [http://police.gmu.edu/](http://police.gmu.edu/)
  Eric Heath, Chief of Police  Phone: (703) 993-3840  E-mail: eheath2@gmu.edu