**Social Robotics (ONLINE)**



**Psychology 734**

**Fall 2020**

Instructor: **Eva Wiese**, Ph.D. Office Hours: Tuesdays 3:00 to 4:00 PM (virtual)

Phone: (703) 993 5266 Class Time: Tuesdays 4:30 – 7:10 PM

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**Course Objectives**

The goal of the seminar is to introduce students to contemporary approaches in social robotics, that is: how to design and evaluate robots that are intuitive to interact with and trigger human-like social interaction patterns. The course is designed for graduate students in psychology, neuroscience, computer science and engineering and consists of theoretical and practical parts: The first part of the course outlines psychological and neuroscientific aspects underlying Human-Robot Interaction (HRI) with a focus on mentalizing, action understanding, and joint action execution. The course also covers common application areas for social robots, such as health care, education and home assistance. The second part of the course is devoted to a research project involving pictures or videos of social robots presented in an online study. Students will develop a research question and investigate it in teams of three: they will plan and conduct a behavioral experiment, analyze and interpret data and write a research report. The report can be submitted as proceedings paper (if results are publishable). Due to the additional challenges associated with Covid, the semester project will be based on already established paradigms. Due to the empirical component, it is necessary that all students have valid CITI certification and a SONA account; furthermore, it is advantageous to have experience with online studies (e.g., Qualtrics) and data analysis (e.g., R or SPSS).

**Reading Assignments**

No textbook is required for this course. Reading assignments include peer-reviewed journal articles. Due dates for the readings are listed below; all papers are available via blackboard. Students are encouraged to schedule regular times during the week for reading, and to discuss them with their classmates prior to class. Students are always encouraged to attend my office hours to discuss any of the topics related to the course, including reading assignments. All reading assignments should be completed before class. Students are also encouraged to search for additional reading along their personal interests to supplement the articles assigned in class. The papers that are assigned as student presentation are also regular reading assignments and need to be prepared for the respective session.

**Course Assignments and Grading**

*Student Presentation*: Each student will present and discuss one paper on social robotics during this course. There will be two presentations per session and the available papers are listed below. The pdfs can be found on blackboard. The semester project contributes **30%** towards students’ course grade.

*Semester Project*: Students will conduct a research project on a social robotics topic (in groups of three). The project will be documented by a written report and oral presentation to the class. Further details regarding the project will be provided in class. The semester project contributes **60%** towards students’ course grade.

*Participation / Discussion of Reading Assignments*: Class participation is essential. Students are encouraged to actively participate in class. Students are also encouraged to engage with classmates and the professor outside of class and take full advantage of opportunities that will arise during the semester to participate in activities related to the course. Participation in class contributes **10%** towards students’ course grade.

**Attendance**

Attendance of all scheduled seminars and class activities is required and essential to successfully learn the concepts covered by this course. Students must be online on time and be ready to participate at the start of the class. As a courtesy, one unannounced/unexcused absence will be allowed for each student, after which each additional unexcused absence will result in the loss of one letter grade per day. In addition, it is advised to contact me BEFORE all absences to accommodate any assignments or other graded material that might not be completed due to the absence. Any assignment that is delayed due to an unexcused absence, even a first offense, will receive no credit unless other arrangements have been made in advance. Your college, school, department, or unit will some have specific guidance about creating opportunities for students who are ill or quarantined to make up class work or assignments, and you should check with your administrators and follow those policies.

a **Communication and Technology**

*Official Communications via GMU Email:* Mason uses electronic mail to provide official information to students. Examples include communications from course instructors, notices from the library, notices about academic standing, financial aid information, class materials, assignments, questions, and instructor feedback. Students are responsible for the content of university communication sent to their mason email account, and are required to activate that account and check it regularly.

*Technology:* The course will be administered “live” via Blackboard Collaborate. Students should familiarize themselves with the tool in advance of the semester start to assure a smooth process. Blackboard Collaborate will also be used for all student presentation. For the empirical part, Qualtrics and/or Inquisit will be used, so students should make sure to contact Dave Cerri in advance to get access to these software packages.

**GMU Honor Code**

George Mason University has an Honor Code that each student accepts as a condition of enrollment. This code is consistent with APA’s ethical principles for working professionals, and it is required that each student adhere to the Honor Code. For this course, group collaboration (such as during a group project or during routine discussions of reading assignments) is expected and encouraged, but all students are required to produce original work on all assignments unless otherwise noted. Plagiarism, academic dishonesty, and other failures to follow the GMU honor code will result in disciplinary actions that are likely to include receiving a failing grade for this course, along with referral to the GMU Honor Committee for further review and documentation of the offense. A lack of knowledge about what constitutes a violation of the GMU honor code is not a defense against possible violations; it is your responsibility as a GMU student to review and adhere to this code. If you have any questions about plagiarism or the GMU honor code, I encourage students to review the code for themselves at http://academicintegrity.gmu.edu/honorcode/ or to see me for clarification.

**Performing at Your Best**

*Learning Accommodations:* Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students by upholding the laws that ensure equal treatment of people with disabilities. If you are seeking accommodations for this class, please first visit [http://ds.gmu.edu/](http://ds.gmu.edu/" \t "_blank) for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: [ods@gmu.edu](mailto:ods@gmu.edu" \t "_blank) | Phone: (703) 993-2474.

*Stress and Academics:* Being a student today can be stressful and life events can create anxiety or depression that can hurt anybody’s academic performance. GMU is committed to helping students maintain their emotional well-being through the GMU Counseling and Psychological Services (CAPS) office, located online at: <http://caps.gmu.edu/> and by telephone at: 703-993-2380. CAPS services are highly regarded, and free to Mason students. They include both one-on-one stress and anxiety counseling and Academic Skills Workshops that can teach you how to ‘study smarter’ and make the most of your investment in higher education.

*Improving Academic Writing:* Strong writing is a skill that is learned through guided instruction and practice. Strong writing skills are beneficial for students pursuing academic or industry careers. Students who seek to improve their writing are encouraged to do so by visiting the GMU Writing Center. Information can be found online at: <http://writingcenter.gmu.edu/>

**Drop Date**

**August 31st** is the last day to addthis class and **September 8th** is the last day to drop it without penalty.

**Weekly Schedule and Assignments**A detailed schedule of reading assignments can be found in the table below. Changes to the assignments will be announced in advance. There is one general assignment (first reference) which is usually a review article introducing the topic of the respective session. The discussion of this paper will be led by the course instructor. The other two papers are discussed in form of student presentations: the paper is assigned in advance to a specific student during the first session of the semester and the student will lead the discussion of the paper. For this purpose, it is expected that the student summarizes the paper in form of a short power point presentation and prepares questions they want to discuss in class. Each paper discussion is planned to take 30 minutes.

The focus of the second part of the class is on the empirical project, which will be administered online. There are three sessions (“Semester Project”; see below) dedicated to data analysis, interpretation and paper writing. We are not meeting in class during these three sessions; the students should rather use this time to work on their semester project within their small team. The instructor will be available during that time to meet with students to discuss issues specific to their research projects.

The instructor reserves the right to make minor changes to the schedule (will be announced in class).

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| **Date** | **Topics** | **Reading & Assignments** |
| **8/25** | **Course Overview** *Syllabus, Requirements, Project* |  |
| **9/1** | **Introduction: What is Social Robotics?** *Lecture and Discussion* | Baraka et al., 2019 Yang et al., 2018 |
| **9/8** | **Introduction: Neuroscience of Social Behavior** *Lecture and Discussion* | Wiese et al., 2017 **Student Presentation 1:** Wang & Quadflieg, 2015 **Student Presentation 2:** Sanfey et al., 2013 |
| **9/15** | **Basics: Mind Perception and Mentalizing** *Lecture and Discussion* | Scasselatti, 2000 **Student Presentation 3:** Gray et al., 2012 **Student Presentation 4:** Kuchenbrandt et al., 2013 |
| **9/22** | **Basics: Understanding Behaviors** *Lecture and Discussion* | Frith et al., 2003 **Student Presentation 5:** Kupferberg et al., 2013 **Student Presentation 6:** Short et al., 2013 |
| **9/29** | **Basics: Performing Actions Together** *Lecture and Discussion* | Knoblich et al., 2011 **Student Presentation 7:** Kupferberg et al., 2012 **Student Presentation 8:** Schneider et al., 2018 |
| **10/6** | **Mid Term Presentation** *Student Presentations of Research Proposal* | CITI training, IRB approval, SONA account DUE |
| **10/13** | **FALL BREAK** |  |
| **10/20** | **Application: Design for Long-Term Use** *Lecture and Discussion* | Belpaeme et al., 2018 **Student Presentation 9:** de Graaf et al., 2017 **Student Presentation 10:** Reich-Stiebert et al., 2019 |
| **10/27** | **Application: Health and Elderly Care** *Lecture and Discussion* | Robinson et al., 2019 **Student Presentation 11:** von Straten et al., 2019 **Student Presentation 12:** Scassellati et al., 2018 |
| **11/3** | **Semester Project** *Introduction, Research Question and Methods* | **Group Work**: Individual meetings but no class |
| **11/10** | **Semester Project** *Data Analysis* | **Group Work**: Individual meetings but no class |
| **11/17** | **Semester Project** *Paper Writing* | **Group Work**: Individual meetings but no class |
| **11/24** | **THANKSGIVING WEEK** *Paper Writing* | **Group Work**: Working on project but no class |
| **12/01** | **Final Presentation** | **Project Presentation and REPORT DUE** |

**Basic Course Technology Requirements**Activities and assignments in this course will regularly use the Blackboard learning system, available at [https://mymason.gmu.edu](https://mymason.gmu.edu/" \t "_blank). Students are required to have regular, reliable access to a computer with an updated operating system (recommended: Windows 10 or Mac OSX 10.13 or higher) and a stable broadband Internet connection (cable modem, DSL, satellite broadband, etc., with a consistent 1.5 Mbps [megabits per second] download speed or higher. You can check your speed settings using the speed test on this website.)

Activities and assignments in this course will regularly use web-conferencing software (Blackboard Collaborate / Zoom). In addition to the requirements above, students are required to have a device with a functional camera and microphone. In an emergency, students can connect through a telephone call, but video connection is the expected norm.

**Course Materials and Student Privacy  
Video recordings** - whether made by instructors or students — of class meetings that include audio, visual, or textual information from other students are private and must not be shared outside the class **Live video conference meetings** (e.g. Collaborate or Zoom) that include audio, textual, or visual information from other students must be viewed privately and not shared with others in your household or recorded and shared outside the class