

# Human-Systems Interaction Psych 768-002

## Instructor Information

**Instructor: Dr. Phillips**

*Office:* 2062 David King Hall

*E-mail:* ephill3@gmu.edu

*Office Hours:* By Appointment. Right now, emails with calendar invites are best.

*Online learning tool:* Blackboard

*Instructor's Zoom Room:* <https://gmu.zoom.us/j/8360166392>

## Daily COVID Health Checks

As a reminder, all GMU students, staff, and faculty are encouraged to complete daily COVID-19 health checks. Seriously, COVID is the worst! Let's do our best to keep each other safe and healthy. Please participate in keeping our community safe.

## Course Information

**Course meeting times: Thursdays 1:30-4:10**

**Location: Music/Theater Building 1008**

We will plan to meet every week in-person in our assigned classroom. However, we should plan to be flexible given the dynamics of the ongoing COVID-19 pandemic. The instructor will make attempts to allow for flexibly attending class remotely, but university policy requires approval from the university provost to move a class from in-person to online. Any attempt to transition fully online this semester will be difficult, unless the university suggests or mandates that we do so. Please plan to attend in person. Additionally, in our schedule we will accommodate a planned break week for working on projects as well as an accommodation for the week of the HFES International Annual Meeting. During the week of HFES, we will plan for students to be able to work on assignments remotely and will not require a synchronous meeting. The break week will be used for student project work.

### **Required Texts:**

These books are available for free! See BB for PDFs of our two required texts!

1. Creswell and Creswell (5<sup>th</sup> edition) Research design: Qualitative, Quantitative, and Mixed Methods Approaches (Used, rented, PDFs, International, and/or borrowed versions are fine. Good resources for finding textbooks in general: [www.bookfinder.com](http://www.bookfinder.com).)
2. Bartneck, C., Belpaeme, T., Eyssel, F., Kanda, T., Keijsers, M., & Šabanović, S. (2020). *Human-robot interaction: An introduction*. Cambridge University Press. (Available for free online: <https://www.human-robot-interaction.org/>)  
*HRI textbook may be used for supplementary materials.*

**Course Description:**

This course will be primarily focused on topics in **human-systems (HSI) and human-robot interaction (HRI)**, and we will use these topics as a lens through which to develop research writing and communication skills. By the end of the course, you should expect to know more about core topics in these research communities and be well prepared to effectively structure and communicate your research ideas to others. The assignments and activities are designed to familiarize you with relevant topics in HSI and HRI and prepare you to complete a conference proceedings paper by the end of the semester. This paper could be submitted by your team in the Spring semester. Fortunately, the skills we practice here will also be transferrable to your masters and doctoral theses and collaborations with engineers and computer scientists working in the field. No matter what career path you choose after graduation, someone with your credentials will be expected to formulate, organize, communicate, and disseminate ideas well. Thus, the plan is to expose you to topics in HSI and HRI that allow you to generate novel research ideas, and then get you to successfully disseminate those ideas to a research community audience.

**Course Goals:** By the end of the semester, you should be able to

1. Summarize research topics in HSI/HRI and identify needed or novel areas of research inquiry.
2. Build a nomological network of constructs for a novel research idea.
3. Use writing tools common to interdisciplinary work in the human-systems and human-robot interaction communities.
4. Succinctly communicate your research and its importance to non-experts, stakeholders, hiring managers, and others.
5. Formulate habits in writing and use writing as thinking.

**How:** You will meet these goals by completing the following activities (more description included in the assignments section of this syllabus):

1. Read and discuss literature from the human-automation, human-robot, Human Factors (and other) communities relevant to the field.
2. Identify deficiencies in the literature.
3. Create a nomological network of constructs of interest.
4. From your readings, and nomological network build one or more hypotheses for a new study, or theory building and articulate your rationale.
5. Write an extended abstract and purpose statement (1-2 pages) for your proposed work.
6. Complete a 5-page conference proceedings paper.
7. Bonus: Submit your work to a peer reviewed outlet!
8. Bonus: Write your assignments in LaTeX!

**How to do well in this course:**

- Contribute to the success of your classmates by engaging in class discussions
- Read every article and chapter
- Make notes on the readings and list questions you have on a separate piece of paper.

- Come to class prepared to discuss and think about the articles and discuss the questions you have.
- Use discussions in-class to generate ideas for research questions you are interested in answering.
- Make early drafts, write your thoughts down, iterate, and keep an open mind

## Projected Schedule of Topics and Dates

Week	Dates	In-class Discussion Topic(s)	Assigned Readings	Assignments Due (All assignments due by class)
<b>Class meets in person on Thursdays Morphologies from 1:30-4:10</b>				
<b>Week 1</b>	Aug 22-Aug 26	<ul style="list-style-type: none"> <li>Introduction, Syllabus Day</li> </ul>		
<b>Week 2</b>	Aug 29-Sept 2	<ul style="list-style-type: none"> <li>Intro to HRI</li> </ul>	Intro to HRI Articles Chapter 2 (Creswell)	
<b>Week 3</b>	Sept 5-Sept 9	<ul style="list-style-type: none"> <li>Automation</li> <li>Intro to Nomological Networks</li> </ul>	Automation articles Chapter 3 (Creswell)	
<b>Week 4</b>	Sept 12-Sept 16	<ul style="list-style-type: none"> <li>Social Robotics</li> </ul>	Social Robotics Articles	
<b>Week 5</b>	Sept 19-Sept 23	<ul style="list-style-type: none"> <li>Affective Computing</li> </ul>	Affective Computing Articles	
<b>Week 6</b>	Sept 26-Sept 30	<ul style="list-style-type: none"> <li>Trust</li> </ul>	Trust Articles Chapter 4 (Creswell)	
<b>Week 7</b>	Oct 3-Oct 7	<ul style="list-style-type: none"> <li>Morphologies</li> </ul>	Morphology articles Chapter 6 (Creswell)- Instructor	
<b>Week 8</b>	Oct 10-Oct 14	HFES Annual Meeting, No Class		
<b>Week 9</b>	Oct 17-Oct 21	<ul style="list-style-type: none"> <li>Project week</li> </ul>		
<b>Week10</b>	Oct 24-Oct 28	<ul style="list-style-type: none"> <li>W1: Well-written Introductions, deficiencies model</li> </ul>	Chapter 5 (Creswell)- Instructor	
<b>Week 11</b>	Oct 31-Nov 4	<ul style="list-style-type: none"> <li>W2: Overleaf and LaTeX Tutorial</li> </ul>	None	Nomological Networks Due (Nov 3)
<b>Week 12</b>	Nov 7-Nov 11	<ul style="list-style-type: none"> <li>Automation, AI, and Society</li> </ul>	Automation, AI, and Society Articles	Extended Abstract and Purpose Statement Due (Nov 10)
<b>Week 13</b>	Nov 14-Nov 18	<ul style="list-style-type: none"> <li>Long term Interaction</li> <li>W4: Research Statements</li> </ul>	Long Term Interaction Articles	
<b>Week 14</b>	Nov 21-Nov 25	Thanksgiving Holiday, No Class		
<b>Week 15</b>	Nov 28-Dec 2	<ul style="list-style-type: none"> <li>Topic TBD</li> <li>Paper Draft Reviews</li> </ul>	(TBD)	Paper First Drafts Due (Dec 2)
<b>Week 16</b>	Dec 5-Dec 9	<ul style="list-style-type: none"> <li>Reading days and Final Exam week</li> <li>Finish projects, Exam TBD as needed</li> </ul>	None	Final papers Due (Dec 9)

**Note:** Instructor reserves the right to adjust this schedule as needed for the students and the pace of the course. If more time is needed for a particular area, we will discuss this and determine whether we should change the schedule. Article reading assignments will be given at least one week in advance of the due date.

**Important Fall Semester Dates:**

*Labor Day:* September 5 (University Closed)

*HFES Annual Meeting:* October 9-13 (No class)

*Thanksgiving holiday:* November 23-27 (University closed)

*Last day of classes:* December 3

*Final Exam reading days:* December 5-6

*Final Exam period:* December 7-14

**Relevant Conference Due Dates to keep in mind**

HRI Conference, Full papers: October 1

HRI Conference, Alt.HRI papers: Typically, late October

HRI Conference, Late Breaking Reports: Typically, early December

HRI Conference, Workshops: Typically, early January

HFES Annual Meeting: Typically, Feb-March

**Instructor-led workshops/lectures**

Frankly, students will get the most out of my expertise in the form of feedback and lectures that target specific skills you will need to complete your assignments and be better HSI/HRI researchers and research communicators overall. The following is a list of focused lectures to be completed by the instructor:

Instructor-led Workshops:

1. **W1:** Introduction to LaTeX and Overleaf (Students will need to create a free account with [www.overleaf.com](http://www.overleaf.com)).
2. **W2:** The deficiencies model and well written introductions.

## Class Assignments and Evaluations

Please note that rubrics for graded assignments will be posted on Blackboard.

Grading of the assignments in the course will use the following weighting of assignments. Each assignment will be worth the following percentage of your overall grade in the course:

- Final paper: 40%
- Discussion contributions: 20%
- Nomological network: 20%
- Extended abstract and purpose statement: 20%

**Reading assignments, student-led discussions, and in-class participation (20% of course grade)**

Class discussions on the readings play a critical role in your success in the course. The first hour of every meeting will be devoted to discussing the articles assigned for the week. Course readings and discussions are meant to both expose students to relevant topics in the field and spark ideas for research papers in the class and beyond.

During the first week of class, each student will sign up to lead one class discussion on one topic and to serve as an alternate to lead a second in-class discussion. Alternates will be used if the lead discussant needs to miss class or rearrange a schedule due to COVID-19. (Unless the lead student is sick, we will not plan to move the discussant schedule around).

Responsibilities of the discussion lead:

- Read the assigned readings for the week located on Blackboard.
- At the start of class, pose an opening question and ask everyone to spend two minutes writing down an answer to the question.
  - The opening question should be something that can have multiple different responses based on different perspectives. For instance, a question that has a definitive “correct” answer or could be answered with a “yes” or “no” response will not work.
- Inspired by the readings, prepare a list of 3-5 talking points and/or questions for the class to discuss. What kinds of thoughts did the readings spark for you? Are any of the topics relevant to your own life or interests? What unanswered questions do you have about these topics? Think about how a discussion or perspectives from other students might help you to answer or to think differently about how you would answer these questions.

Responsibilities of the class participants:

- Respond to the opening question and be prepared to share.
- Effective class comments may integrate material from this and other courses, draw on real-world experiences and observations, address questions raised by others, or pose new questions to the class.
- Further, participation is improved by knowing when to speak and when to listen or allow others to participate.
- Take a moment to think about how your comments may be received.
- Comments that are vague, repetitive, or unrelated to the current topic are distracting and do not move forward the discussion.
- Students will be expected to come prepared and ready with thoughts and ideas to share.

Rubric for evaluating in-class contributions:

3. Strong Contributor: Contributions in class reflect thorough preparation. Ideas offered are substantive and provide good insights as well as direction for the class. Challenges are well substantiated and are persuasively presented in a respectful manner. If the strong contributor person were not a member of the class, the quality of discussion would be diminished considerably.
4. Adequate Contributor: Contributions in class reflect satisfactory preparation. Ideas offered are sometimes substantive, provide generally useful insights but seldom offer a new direction for the discussion. Challenges are sometimes presented, fairly well

substantiated and are sometimes persuasive. If the adequate contributor were not a member of the class, the quality of discussion would be somewhat diminished.

3. Minimal Contributor: Contributions in class reflect minimal preparation. Ideas offered are occasionally but rarely substantive, and offer repetitive or obvious insights. Challenges are rarely presented, or are not persuasive if presented. If the minimal contributor were not a member of the class, the quality of discussion would diminish only slightly.
2. Non-Participant: The non-participant says little or nothing in class. Hence, there is not an adequate basis for evaluation. If this person were not a member of the class, the quality of discussion would not be changed.
1. Unsatisfactory Contributor: Contributions in class reflect inadequate preparation. Ideas offered are seldom substantive, provide few if any insights and are often tangential and off track. Comments are insensitive to other students in the class. If this person were not a member of the class, valuable time would be saved and the comfort level of the class would be elevated.

#### Responsibilities of the instructor:

- The instructor will help to moderate the in-class discussions, to keep discussions civil, and to evaluate engagement from the students.
- The instructor may ask follow-up questions if the students need help clarifying their thoughts.

#### Reading assignments from Creswell textbook:

Discussions of reading assignments from the Creswell textbook will be led by the instructor. Students will be responsible for reading each assigned chapter before class and be prepared to ask questions and discuss. We will apply materials from this book to your, nomological network, abstracts, project papers, and other forms of writing in the class.

**5-page paper (40% of course grade):** The culminating assignment of the semester will be a 5-page paper formatted in HFES conference style. Students will work in a team of 2-3 to complete the assignment. Students can choose to write this paper using either MS Word or LaTeX. Students will turn in the final paper as a pdf with following naming convention  
authorlastname\_authorlastname...\_final paper.pdf

The paper should integrate theory and research on some topic in human-systems or human-robot interaction and ideally lay a foundation for research that could be completed in future semesters. The final paper can take two forms: either an integrative literature review that explores and identifies gaps in the literature, deficiencies, or conflicting findings and attempts to outline what should come next to address these problems. Or, the paper can be a proposed (or completed) study with full methods detailed and proposed to answer an outstanding research question. For HFES, proposed work is permitted in the student forum. These are

examples, but students have a bit of freedom to explore what they think would be an interesting contribution to the field.

You should plan to select a question or topic that is of interest to you and explore the research literature. The articles we will review for class are intended to expose you to topics. But, you will certainly need to find more to support your hypotheses and arguments in your papers. Plan for this. Topics for final papers need to be discussed with me (with the goal for me to provide feedback). I am happy to help you shape your ideas and suggest additional papers and authors you should read. You can choose any topic we cover in class or any that fits into the scope of human-system or human-robot interaction (both are very broad). The instructor will provide examples of theoretical HFES papers on blackboard for students to use as inspiration. I encourage you to use this as part of a literature review for your dissertation, theses, comps preparation, lab work, etc.

For instance, you might consider:

- Ethical issues surrounding the deployment of autonomous vehicles
- Designing interfaces for efficient human-robot communication
- How can AR/VR can be integrated into autonomous systems?
- Situation awareness in cyber space teams.
- How can robots and other autonomous systems can spark happiness, joy, and connection?
- Should deception be built into systems with which humans interact?

Further, we will allocate class time throughout the semester to work on the papers. Grades on the final papers will be based on the quality of writing, completeness of the paper, how well you articulate your research ideas and whether the formatting conforms with HFES conference guidelines. No late papers will be accepted. The grading rubric will be posted for students on BB.

To get you to a 5-page paper we will complete two assignments intended to help you organizing your thinking and ultimately your writing.

### **Nomological Network (20% of course grade)**

A nomological network is a representation of constructs of interest to your research, their observable manifestations (i.e., operationalizations of the construct), and the inter-relationships between constructs. Students will plan to organize this information in the form of a table with relevant citations. In addition, students will present relevant constructs organized as a figure depicting the proposed model and resulting hypotheses that come from this model given as an ordered list.



**Abstract and purpose statement (20% of course grade)**

Extended abstract should be 1-2 pages in length and cover the following (Can be used as section headers):

*Why: Motivation:*

Provide context for the work and reasons it is important.

*What: Focus of this work*

Write a short statement of the specific focus of the work presented.

*How: Methodology (if a proposed study)*

Describe the methodology used to approach the problem of interest. If the focus of your work is on designing a system, this section frequently focuses on your design (“how” the focus of the work is addressed).

*Who cares: What is/will be the importance of this work*

Describe why this work is important to the field, who it could benefit. Convince your readers why we should care about this project.

*Purpose:*

Include a purpose statement in the concluding sections of the wor

**Final Exam:**

The final exam is TBD and will be announced by the middle of the semester according to the rules set forth by the University’s final examination guidelines. At the moment, there is no plan for a final exam. However, the instructor will determine with input from the class whether a final culminating evaluation will be needed and in what format this exam will take.

**Grading scale**

Letter grades will be assigned based on the standard format (scores of .5 and above are rounded up, anything below .5 is rounded down). Keep in mind GMU graduate students are expected to maintain a 3.0 GPA:

Percentage	Grade
97%-100%	A+
93%-96%	A
90%-92%	A-
87%-89%	B+
83%-86%	B
80%-82%	B-
77%-79%	C+
73%-76%	C
70%-72%	C-

## Helpful Resources

Like many university's GMU allows students to VPN into the university's networked resources. This will be particularly helpful for literature searches conducted at home. Once you are on the Mason network, you will have virtual access to the library's digital resources, including journal access. If you are on the VPN and do a Google Scholar search, it should link you to University access to articles that may otherwise might have a paywall for you. Also, many scholars now include their work on research sharing spaces like Research Gate. You can always reach directly out to them. In my own experience, many scholars are happy to share PDFs of their work.

GMU VPN Info: <https://its.gmu.edu/service/virtual-private-network-vpn/>

## Other course policies

### **Attendance Policy:**

I will not take attendance. However, attendance is strongly encouraged as leading and participating in discussions is part of your graded assignments. Also, it is helpful for your team and classmates. As a general rule, a good way to be successful in your courses is to attend them.

Students who miss classes, exams, or other assignments for their religious observances or for participation in a university sponsored activity will be provided a reasonable alternative opportunity, consistent with class attendance policies stated in the syllabus, to make up the missed work. It is the obligation of students to provide me, within the first two weeks of the semester, with the dates of major religious holidays on which they will be absent, and the dates for which they are requesting an excused absence for participation in any university-sponsored activity scheduled prior to the start of the semester, and as soon as possible otherwise. Students requesting an excused absence for participation in a university sponsored activity must provide me a letter from a university official stating the dates and times that participation in the activity would result in the student missing class.

### **General classroom management:**

- It goes without saying that we are all adults and behavior that shows respect for yourselves, your classmates, and the educational process is expected.
- Please silence cell phones during class.
- **It is encouraged that you take notes on paper. The science supports that it is difficult to pay attention to the computer as a source of conversation and interaction and also take notes simultaneously.**
  - **Also, this research strongly supports that notes taken on paper are retained in memory longer than notes taken on the computer: (Mueller and Oppenheimer (2014) <https://doi.org/10.1177/0956797614524581>**
- Courtesy is expected. Come to class on time and stay for the entire session. If you have an emergency and must come in late or early, please do so quietly. There will likely be instances in which we end class early.

- The instructor reserves the right to change the syllabus if necessary and based on the needs of the class.
- In the event that the instructor wishes to disseminate information to the entire class outside of the classroom, an email will be sent to all students' George Mason email addresses. It is the students' responsibility to regularly check email at this address. It would be wise to check email the morning of class. There may be announcements regarding assignments or lecture that would be a good idea for you to see.

**Make up/ Extension Policy:** Extensions on assignments will not be granted lightly, and will be reserved for serious, documented problems (e.g., illness) and must be requested BEFORE the due date. Grades will be lowered if no extension has been previously granted. There is no extension without previous approval, by me, in writing. When you request an extension, I will ask to see everything you have prepared for the assignment up to that point, to ensure that you are not simply requesting an extension because you had not yet begun the assignment. Each unapproved day late is a full letter grade deduction on from your grade.

**Technology Usage and technology requirements:**

All primary contact in the course will be via in-class meetings, email, and Blackboard; thus, you should expect to check your Mason email account regularly and to keep your mailbox maintained so that messages will not be rejected for being over quota. It's a good idea to check your email the morning of class to check for announcements. You may forward GMU emails to other accounts, but emails to the instructor should come only from your GMU account. Due to federal rights and privacy laws, instructors are not allowed to accept emails from non-GMU accounts.

We will use Blackboard, available at <https://mymason.gmu.edu>, to house the materials for our course (e.g., reading materials, copies of the syllabus, grade book, etc.) Students are expected 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).

**GMU E-mail Policy:** 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 e-mail account and are required to activate that account and check it regularly.

**Class Cancellation Policy:** This class will entail frequent use of email and Blackboard. Please check Blackboard and your email regularly. If class is cancelled, I will notify you using email/Blackboard and detail how we will proceed after a cancellation.

### **Academic Dishonesty and Honor Code:**

All GMU policies apply. You are responsible for knowing the rules regarding academic dishonesty. When in doubt about what constitutes plagiarism or other forms of academic dishonesty, first check with me. George Mason University has an Honor Code, which requires all members of this community to maintain the highest standards of academic honesty and integrity. Cheating, plagiarism, lying, and stealing are all prohibited. If you think it might constitute a violation of the honor code, it probably does. Please take a step back, ask questions, and think before you act. All violations of the Honor Code will be reported to the Honor Committee.

**Plagiarism:** *What is Plagiarism?* **Plagiarism** (v.) is the act of taking undeserved or unwarranted credit for something. **Plagiarism** (n.) is something represented in a plagiaristic fashion. *Severe plagiarism* (a.k.a. “copying”) is the most overt and deceptive form of plagiarism. This involves deliberately misrepresenting all or part of another person’s work as one’s own. For example, a student might turn in a paper written by another student in a previous term. Another common example is writing containing chunks of “copy-and-paste” from published articles or internet sources such as Wikipedia. Papers copied from the internet are typically obviously copied and can be located on the internet with a simple Google search.

*Irresponsible plagiarism* (a.k.a. “omission”) is the act of paraphrasing or quoting from a source, without giving credit to the source. The author does not necessarily explicitly take credit for the idea or materials (but this is nevertheless implied). Please be aware that not only do ideas need to be cited, but they should also be stated *in your own words*.

*Should I Plagiarize?* You should absolutely not plagiarize. You will be caught and there will be severe consequences. Sometimes students state that they do not know what constitutes plagiarism. If in question, you can review this resource: <https://plagiarism.iu.edu/> Clear examples are provided about the difference between using a secondary source correctly and plagiarizing from it.

If a student is suspected of plagiarism, the matter will be turned over to the Committee on Academic Integrity. Students who violate academic integrity will receive an F in the course, and the Committee on Academic Integrity may determine other more serious consequences.

### **Enrollment Statement**

Students are responsible for verifying their enrollment in this class. Schedule adjustments should be made by the deadlines published in the Schedule of Classes. (Deadlines each semester are published in the Schedule of Classes available from the Registrar's Website [registrar.gmu.edu](http://registrar.gmu.edu).)

Last Day to Add: Monday August 29, 2022

Last Day to Drop (full refund): Tuesday September 6, 2022

Last Day to Drop (50% refund): Tuesday September 13, 2022

After the last day to drop a class, withdrawing from this class requires the approval of the dean and is only allowed for nonacademic reasons.

### **Disability Statement**

If you are a student with a disability and you need academic accommodations, please contact the Office of Disability Resources at 703.993.2474. All academic accommodations must be arranged through that office. Something of note, the ODR office is not just for “disability” in the colloquial sense. Whenever you have a significant illness or event (like an accident, a COVID-19 infection), this office can help you find appropriate accommodations. Further, they can help to keep your records private. Thus, you would not have to reveal your protected health information, for instance, with your professors. This office will contact me with your required accommodations.

### **Acknowledgement and syllabus debt**

Dr. Phillips acknowledges Dr. Goldstein for her help in constructing this syllabus. Syllabus debt is owed. Thank you.