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University of Waterloo
Department of Psychology
PSYCH 470

Applied Cognition: Past, Present, and Future

Spring 2021
Live Online Session: Friday 1 – 2:30 PM (recordings available on LEARN)

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Instructor and T.A. Information

Instructor: Martin Lochner
Office: PAS 2054
Office Phone: n/a
Office Hours: by appointment
Email: mlochner@uwaterloo.ca

The best way to reach me is by email. You can normally expect a response from me within 24 hours. I am available for office hours by scheduling an appointment over email, and we can arrange a meeting using the MS TEAMS system.

T.A.s	Xinyi Lu	Candice Hubley	Kaitlin Bain
Email	xinyi.lu@uwaterloo.ca	cmhubley@uwaterloo.ca	ksbain@uwaterloo.ca
Office	remote	remote	remote
Office Hours	Tuesday 10am	Thursday 11am	Wednesday 11am

Course Description

This course is designed as a capstone experience for psychology majors who would like to learn how some of the principles of psychology can be applied to complex real-world problems. Psychological concepts and techniques have played a functional role in the development of our modern technical systems, and by all estimates will continue to do so in the future. This course will be divided into four main sections. First, we will develop our historical perspective on current applications, (e.g., the scientific study of time and motion; Taylorism) and how these 'Scientific Management' techniques evolved into Human Factors, and eventually Cognitive Ergonomics. Second, we will investigate some of the major applications and successes of this branch of psychology in the 20th century. Third, we will explore the modern landscape: UX-Design, Human Computer Interaction, Human Factors, and other overlapping domains. Finally, we will conclude our studies with the exploration of possible futures, based on current theories, technologies, and trends. Virtualization, Augmented Cognition, Modelling, AR/VR applications in the workplace, remote work, AI/Human teams, etc. This last section offers the opportunity for creative investigation of some emerging technologies and applications.

Course Goals and Learning Outcomes

Upon completion of this course, students should be able to:

A. Understand the historical context of Applied Psychology, and the path to applied Cog. Psych.
B. List and describe the fundamental concepts underlying applied cognitive psychology.
C. Demonstrate the ability to present research findings in front of peers.
D. Perform peer review of other students work.
E. Read and criticize research articles.
E. Develop and present testable research hypotheses in a 'Research Proposal' format.
F. Produce a formal research paper.

Required Text

- We will be taking readings from The Handbook of Applied Cognition, 2nd Edition (Wiley). These will be available through the LEARN system. Due to the high cost of this text, I am working with the library to get access electronically.

Readings Available on LEARN

- This course will include numerous research articles, some of which will be chosen by me, and some of which will be chosen by your peers. These will be made available through the LEARN system.

Course Requirements and Assessment

Assessment	Date of Evaluation (if known)	Weighting
Article Discussions (discussion board)	Ongoing throughout semester	10%
Article Presentation	Weekly	15%
Peer Review of Student Presentations	Weekly	5%
Research Proposal	June 21st	25%
Final Term Paper	August 2nd	45%
Research Participation (bonus)	Ongoing throughout semester	4%
Total		104%

Assessment 1: Article Discussion (10%)

Because we are working remotely this semester, the online discussion board takes on a new and important role, and will be our primary source for class participation assessment. Each week we will have the chance to take part in group discussion of the course material, and this can be conducted using the LEARN discussion board. This will be worth a total of 10% of your final mark.

Assessment 2: Article Presentation (15%)

There is one Article Presentation for each student this semester. These will be brief (10 – 15 minutes) and will take place in class, or recorded if the student prefers/requires. To level the playing field and reduce stress around this Assessment, it will be graded at **80% for completion,** and the remaining 20% for accuracy, effort, and presentation quality.

Assessment 3: Peer Review of Student Presentations (5%)

It is expected that all students will watch all student presentations. You will be asked to provide a peer review of five of your peers' presentation. In your feedback, identify 2-3 strengths of the presentation and 2-3 areas for improvement. The grade you receive will be based on the overall quality of the feedback you give to your peers. Your will submit your feedback through LEARN and the course instructor and TA will compile the feedback and send to each student.

Assessment 4: Research Proposal (25%)

We will reflect upon our own interests and reasons for taking this course, and use this reflection to develop an idealized research paradigm, specifically addressing an application of Cognitive Psychology. In other words, we will perform a basic literature review, form a testable hypothesis, and a plan for testing this hypothesis, including some basic predictions. Length: 3-5 pages.

Assessment 5: Final Term Paper (45%)

Formal essay, addressing area of interest. Further details will be provided in class.

Assessment 6: Research Participation (4%)

Participation in the SONA research pool, towards course credit

Course Outline

WEEK	DATE	MODULE	DUE DATES
1	10-May	Introduction	
2	17-May	Origins of Applied Cog Psych	
3	24-May	Early Research	
4	31-May	Early Research	
5	07-Jun	Contemporary Applications 1	
6	14-Jun	Contemporary Applications 2	
7	21-Jun	Contemporary Applications 3	Research Proposal Due
8	28-Jun	HCI, UX, Aug Cog, VR/AR, AI, HFE 1	
9	05-Jul	HCI, UX, Aug Cog, VR/AR, AI, HFE 2	
10	12-Jul	HCI, UX, Aug Cog, VR/AR, AI, HFE 3	
11	19-Jul	Possible Futures 1	
12	26-Jul	Possible Futures 2	
13	02-Aug	Possible Futures 3	Final Paper Due

Late Work

All written work is to be completed by 11:55 pm on the due date, and submitted to a dropbox on LEARN. Students submitting late work will be assessed a penalty of 5% per day or partial day (including weekends) up to a maximum of 35% (7 days). Following this, written work will no longer be accepted for grade.

Students Seeking Accommodation Due to Ilness or Bereavement

Students who are requesting accommodation for course requirements (assignments, midterm tests, final exams, etc.) due to illness should do the following:

1. seek medical treatment as soon as possible and obtain a completed UW Verification of Illness Form:

http://www.healthservices.uwaterloo.ca/Health_Services/verification.html

and submit that form to the instructor within 48 hours.

2. (preferably) inform the instructor by the due date for the course requirement that you will be unable to meet the deadline and that documentation will be forthcoming.

In the case of a missed assignment deadline or quiz, the instructor will either: waive the course component and re-weight remaining term work as he/she deems fit according to circumstances and the goals of the course, or provide an extension.

In the case of bereavement, the instructor will provide similar accommodations to those for illness. Appropriate documentation to support the request will be required.

Students who are experiencing extenuating circumstances should also inform their academic advisors regarding their personal difficulties.

Electronic Device Policy

Due to the online nature of this course, we are not restricting electronic device usage, however it is encouraged that you minimize multi-tasking during class time / lecture viewing.

Attendance Policy

University guidelines indicate that all lectures / classes will be recorded and available outside of the scheduled class time. Attendance at the weekly lecture is highly recommended, for best learning outcomes and experience, but not mandatory.

Institutional-required statements for undergraduate course outlines approved by Senate Undergraduate Council, April 14, 2009

Academic Integrity

In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility. Check the Office of Academic Integrity webpage for more information.

Discipline

A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for their actions. Check the Office of Academic Integrity for more information. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline. For typical penalties check Guidelines for the Assessment of Penalties.

Concerns about a Course Policy or Decision

Informal Stage. We in the Psychology Department take great pride in the high quality of our program and our instructors. Though infrequent, we know that students occasionally find themselves in situations of conflict with their instructors over course policies or grade assessments. If such a conflict arises, the Associate Chair for Undergraduate Affairs (Richard Eibach) is available for consultation and to mediate a resolution between the student and instructor: Email: reibach@uwaterloo.ca; Ph 519-888-4567 ext. 38790

Grievance

A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4. When in doubt, please be certain to contact Richard Eibach, the Associate Chair for Undergraduate Affairs who will provide further assistance; reibach@uwaterloo.ca.

Appeals

A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 - Student Discipline may be appealed if there is a ground. A student who believes they have a ground for an appeal should refer to Policy 72 - Student Appeals.

Note for Students with Disabilities

The AccessAbility Services office, located on the first floor of the Needles Hall extension (NH 1401), collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS office at the beginning of each academic term.

Faculty of Arts-required statements for undergraduate course outlines

Cross-listed Course (if applicable)
Please note that a cross-listed course will count in all respective averages no matter under which rubric it has been taken. For example, a PHIL/PSCI cross-list will count in a Philosophy major average, even if the course was taken under the Political Science rubric.

Accommodation for course requirements for Psychology courses.
Policies of the Psychology department pertaining to course requirements are available on the [department website](#).

Chosen/Preferred First Name

Do you want professors and interviewers to call you by a different first name? Take a minute now to verify or tell us your chosen/preferred first name by logging into [WatIAM](#).

Why? Starting in winter 2020, your chosen/preferred first name listed in WatIAM will be used broadly across campus (e.g., LEARN, Quest, WaterlooWorks, WatCard, etc). Note: Your legal first name will always be used on certain official documents. For more details, visit [Updating Personal Information](#).

Important notes

- If you included a preferred name on your OUAC application, it will be used as your chosen/preferred name unless you make a change now.
- If you don't provide a chosen/preferred name, your legal first name will continue to be used.

Mental Health Support

All of us need a support system. The faculty and staff in Arts encourage students to seek out mental health support if they are needed.

On Campus

Due to COVID-19 and campus closures, services are available only online or by phone.

- Counselling Services: counselling.services@uwaterloo.ca / 519-888-4567 ext. 32655
- [MATES](#): one-to-one peer support program offered by the Waterloo Undergraduate Student Association (WUSA) and Counselling Services

Off campus, 24/7

- [Good2Talk](#): Free confidential help line for post-secondary students. Phone: 1-866-925-5454
- Grand River Hospital: Emergency care for mental health crisis. Phone: 519-749-4300 ext. 6880
- [Here 24/7](#): Mental Health and Crisis Service Team. Phone: 1-844-437-3247
- [OK2BME](#): set of support services for lesbian, gay, bisexual, transgender or questioning teens in Waterloo. Phone: 519-884-0000 extension 213

Full details can be found online on the Faculty of Arts [website](#)

Download [UWaterloo and regional mental health resources (PDF)](#)

Download the [WatSafe app](#) to your phone to quickly access mental health support information.

Territorial Acknowledgement

We acknowledge that we are living and working on the traditional territory of the Attawandaron (also known as Neutral), Anishinaabe and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes ten kilometres on each side of the Grand River.

For more information about the purpose of territorial acknowledgements, please see the [CAUT Guide to Acknowledging Traditional Territory](#).

Academic freedom at the University of Waterloo

[Policy 33, Ethical Behaviour](#) states, as one of its general principles (Section 1), "The University supports academic freedom for all members of the University community. Academic freedom carries with it the duty to use that freedom in a manner consistent with the scholarly obligation to base teaching and research on an honest and ethical quest for knowledge. In the context of this policy, 'academic freedom' refers to academic activities, including teaching and scholarship, as is articulated in the principles set out in the Memorandum of Agreement between the FAUW and the University of Waterloo, 1998 (Article 6). The academic environment which fosters free debate may from time to time include the presentation or discussion of unpopular opinions or controversial material. Such material shall be dealt with as openly, respectfully and sensitively as possible." This definition is repeated in Policies 70 and 71, and in the Memorandum of Agreement, Section 6