Washington State University

MAJOR CURRICULAR CHANGE FORM - - NEW/RESTORE COURSE

☐ Please attach rationale for your request, a complete syllabus, and explain how this impacts other units in Pullman and other campuses (if applicable).
☐ Obtain all required signatures with dates.
☐ Provide original stapled packet of signed form/rationale statement/syllabus PLUS 10 stapled copies of complete packet to the Registrar's Office, campus mail code 1035.
☐ Submit one electronic copy of complete packet to wsu.curriculum@wsu.edu

Requested Future Effective Date: Spring 2016 (term/year) Course Typically Offered: Spring

DEADLINES: For fall term effective date: October 1st; for spring or summer term effective date: February 1st. See instructions.

NOTE: Items received after deadlines may be put to the back of the line or forwarded to the following year. Please submit on time.

☐ New Course

<table>
<thead>
<tr>
<th>CPT 5</th>
<th>PSYCH</th>
<th>486/586</th>
</tr>
</thead>
<tbody>
<tr>
<td>course subject/crosslist</td>
<td>course no.</td>
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</tbody>
</table>

3

<table>
<thead>
<tr>
<th>Credit hrs</th>
<th>lecture hrs per week</th>
<th>lab or studio hrs per week</th>
<th>prerequisite</th>
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</thead>
</table>

Description for catalog: In-depth exploration of gerontology, including socialization, caregiver issues, dementia, app design and data visualization

Additional Attributes: Check all that apply.

☑ Crosslisting (between WSU departments)*
☐ Variable credit: 

☐ Conjoint listing (400/500):
☐ Repeat credit (cum. max. hrs):

Special Grading: ☐ S, F; ☐ A, S, F (PEACT only); ☐ S, M, F (VET MED only); ☐ H, S, F (PHARMACY, PHARDSCI only)

☑ Cooperative with UI
☐ Other (please list request ):

The following items require prior submission to other committees/depts. (SEE INSTRUCTIONS.)

☐ Request to meet Writing in the Major [M] requirement (Must have All-University Writing Committee Approval.)

☐ Request to meet UCORE in (Must have UCORE Committee Approval) See instructions.

☐ Special Course Fee (Must submit request to University Receivables.)

Contact: Diane Cook
Phone number: 335-4985
Instructor, if different: Maureen Schmitter-Edgecombe
Email: cook@eecs.wsu.edu
Campus mail code: 2752

Chair: 2/12/15
Dean: 2/23/15
All-University Writing Com / date

Chair (if crosslisted/interdisciplinary)*
Dean (if crosslisted/interdisciplinary)*
UCORE Committee Approval Date

Catalog Subcommittee Approval Date
GSC or AAC Approval Date
Faculty Senate Approval Approval Date

*If the proposed change impacts or involves collaboration with other units, use the additional signature lines provided for each impacted unit and college.
To Whom It May Concern:

We would like to propose two new courses for consideration. This is a multidisciplinary course sequence on the topic of Gerontechnology, which is the study and design of technologies to address challenges related to aging.

**Previous offerings:** Drs. Cook and Schmitter-Edgecombe have taught this course sequence three times as a graduate-level course sequence. The classes were favorably received. The research projects that were introduced in the class were actually developed into full PhD dissertations by six graduate students. In addition, approximately 20 papers have been published based on results from this class, including a paper on Gerontechnology curriculum development.

**Background on this proposal:** During Fall of 2014 we received $1.7 million funding from the National Institutes of Health to design a five-year undergraduate training program on Gerontechnology. Our stated goals include offering the Gerontechnology I and II courses at the undergraduate level as well as the graduate level. We committed to offering the class to students from multiple disciplines. In addition, a goal of the program was to integrate the course sequence into WSU’s existing Minor on Aging (see attached proposal objectives). The current and prior advisors for this minor, Dr. Debra Nelson and Dr. Margaret Young, are both very supportive of including this class as an elective in the minor. In order to do this, however, we need a formal course number assigned to the proposed classes.

**Differences between Gerontechnology I and Gerontechnology II:** In order to receive thorough training in a complex field such as Gerontechnology, we need two semesters. Not only will this allow us to cover a broad range of topics with greater depth, but the longer time frame will provide the students with more significant experience in conducting Gerontechnology. Here are specific differences between the two semesters:

- **Topics**
  - Gerontechnology I: Research methods, sensors, smart environments, aging and senses, aging and health care, exercise and mobility, cognition, aging and everyday function, ethics
  - Gerontechnology II: Mild cognitive impairment and dementia, socialization, caregiver issues, mobile app design for health monitoring and intervention, tremor analysis, IRB background, data visualization, and technology assistance for other health issues
- **Homeworks**
  - Gerontechnology I: service learning project and report, collection and analysis of smartphone data
  - Gerontechnology II: paper presentation, design of digital memory notebook app, elevator talk
  - Both semesters will also include guest speaker summaries and a research project report
- **Research project**
  - Gerontechnology I: Students will define their project statement and hypothesis, will get familiar with the underlying technology and aging challenge, and will complete an initial pilot test. The opportunity to work with older adults as part of the service learning component early in the semester will also assist in laying the foundation for student projects.
Gerontechnology II: Students will conduct a full study, analyze the collected data, and write up the results.

- Both semesters will include guest lectures from experts in the field and field trips to medical or research sites.

**Differences between the Graduate and Undergraduate versions of the class:** The underlying material of this course is relevant and valuable for both graduate and undergraduate students. The material is specialized enough that not many faculty can teach the course. As a result, we want to offer graduate and undergraduate versions of the class at the same time, so both groups can benefit from the core material. However, there are differences between the graduate and undergraduate versions of the class.

First, in Gerontechnology I the graduate students will write a survey paper on a topic related to gerontechnology (the undergraduate students will not write this paper). This will give them experience performing a literature review with critical analysis. On the other hand, the graduate students will perform a slightly smaller service project than the undergraduate students (although both will be required to write a service learning project report). In Gerontechnology II, the graduate students will perform a more thorough study based on their research project and from this work prepare a draft version of a paper to submit to a gerontechnology-related journal.

In both classes, the graduate students will take on a leadership role in the team research projects and will mentor the undergraduate team members as well as contribute to the research project. In this role, graduate students will set up regular meeting times for their team and make sure the group is adhering to the project timeline. This will provide graduate students with valuable leadership experience and provide cohesiveness to the project team. In order to guide the graduate students through these extra steps, the instructors will meet separately with the graduate students to offer suggestions and address concerns.

This additional required work for the graduate students will give them a deeper understanding of the field (through the survey paper requirement). They will obtain mentoring experience that positions them to be leaders in the field (through the team leadership requirement) and will obtain additional data analysis and interpretation experience (by means of the additional analysis and writing required for the journal draft paper).

Here are the additional conjoint course information components that are requested.

1. **Number of faculty in the degree granting area.**
   - Psychology: 33 faculty, including 8 clinical-track (Pullman only: 19 faculty; 6 are clinical-track faculty)
   - Computer Science: 14 faculty

2. **Number of graduate courses listed on the books.**
   - Clinical Psychology: 26 graded graduate courses, 14 S, F courses. For reference see following link: [http://catalog.wsu.edu/Pullman/Courses/BySubject/PSYCH](http://catalog.wsu.edu/Pullman/Courses/BySubject/PSYCH).
   - Computer Science: thirty graduate courses. For reference see link [http://school.eecs.wsu.edu/graduate/courses](http://school.eecs.wsu.edu/graduate/courses)

3. **Number of courses currently listed as conjoint.**
   - Psychology: one conjoint course; 491/591 Principles of Learning
   - Computer Science: eight conjoint courses

4. **How often are the conjoint courses offered?**
   - Psychology: The graduate counterpart is offered approximately every other year. The undergraduate level course is offered every year.
b. Computer Science: The undergraduate and graduate components are typically offered once a year. A couple of the classes are offered every other year.

5. How many courses are designed as graduate courses with a few undergrads enrolled?
   a. Psychology: There is only one conjoint course. Graduate enrollment is typically much less than undergraduate enrollment.
   b. Computer Science: None of them. All of them have close to equal enrollment of graduate and undergraduate students.

6. Over the past three years, what percentage of courses on the Graduate degree program of study are conjoint courses?
   a. Psychology: Over the past three years, only one conjoint course was offered, comprising 2% of the total time.
   b. Computer Science: Approximately 10% of the graduate class offerings have been attended by undergraduates.

7. Why is this particular course integral to the graduate program in the degree granting areas?
   This is a very unique class that is becoming an important and popular research topic in both fields (Psychology and Computer Science). Both the National Science Foundation and the National Institutes of Health feel that the topic is so important that they provide funding to universities who can design training programs in the field for undergraduate students and graduate students. This particular course sequence is sponsored in part by a training grant from the National Institutes of Health. Our past offerings of the graduate version of the class (three previous offerings) were well attended. The research projects that were initiated in the class resulted in eleven PhD dissertations and the students have continued to work in related areas for their chosen careers. In addition, the need to prepare students for the job market and scientific challenges by adapting the graduate training curricula to provide more multidisciplinary training is an emerging challenge in graduate education.

   Because this is a multidisciplinary topic, it is not one that is commonly offered in either program or at many universities. However, at Washington State University we have faculty in each discipline who have worked in this area together for a number of years and so are uniquely positioned to train students in the field. Taking the class fills an important training need in the overlap between the disciplines. However, the class also trains students in topics that are central to the individual disciplines as well, including field experiences, human subjects training, and experiment design (Psychology); and data visualization, app design, machine learning, and data analysis (Computer Science).

8. How many students are in the degree area?
   a. Clinical Psychology: approximately 60 graduate students (in 2 PhD programs), approximately 1000 (pre-majors + majors) undergraduate students
   b. Computer Science: 160 graduate students, 900 undergraduate students

9. Are there department policies about the number of conjoint courses on a program of study?
   a. Psychology: No
   b. Computer Science: No.

Request: We request that the proposed course sequence be approved by our curriculum committees, department chairs, and the faculty senate. Specifically, the course sequence needs:

- A 400-level Computer Science (CptS) undergraduate course number
- A Computer Science (CptS) graduate course number
- A 400-level Psychology (Psych) undergraduate course number
- A Psychology (Psych) graduate course number

We additionally request that the class be reviewed as an addition to the list of electives offered for the Minor on Aging.

Thank you for your consideration.

Diane Cook (EECS), Maureen Schmitter-Edgecombe (Psychology), and Aaron Crandall (EECS)
Proposed Course: Gerontechnology II

First Offering: Spring 2016

Course Instructors

Maureen Schmitter-Edgecombe
Office: JT 312
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Diane Cook
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Aaron Crandall
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Email: acrandal@wsu.edu

Course Web Page

The class web page is available at http://eecs.wsu.edu/~cook/gt2. All of the class materials are available online, including the syllabus, homework assignments, papers, lecture materials, and videos of guest speaker presentations. All required instructional materials can be accessed at this web page.

Catalog Course Description

Psych 486 / CptS 486 / Psych 586 / CptS 586 Gerontechnology II 3 Course Prerequisite: Certified in major or consent of instructor.

Required Instructional Material

Given that this is an emerging area of study, there are no available textbooks that fully cover the integrated aspects of the course material. Instead, students will be reading original research articles as well as book chapters to develop both breadth and depth in the subject matter of gerontechnology. An example list of reading materials that will be updated can be found at the end of the course syllabus. There are a few Gerontechnology books that are available as optional resources, these are listed at the end of the syllabus as well.

Course Overview

In this class, we will continue to introduce the principles of Gerontechnology. The class will consist of lectures, group discussion, guest presentations, paper presentations, and a multidisciplinary research project. This semester we will move beyond the introduction of your research project to performing actual data collection, analysis, and interpretation. We will also give you practice communicating your ideas to a multidisciplinary audience. Our lectures will include new and more in-depth topics than were found in Gerontechnology I, including mild cognitive impairment, caregiving challenges, chronic health conditions, and design of mobile apps for health monitoring and intervention.
Specific Course Learning Outcomes and Assessments

Because this proposed class includes aspects of scientifically-validated psychological testing and an introduction to engineering methods for data collection, analysis, and design of health-assistive tools, it provides a unique opportunity to strengthen skills in each of the WSU Seven Learning Goals and Outcomes: 1) Critical and Creative Thinking, 2) Quantitative Reasoning, 3) Scientific Literacy, 4) Information Literacy, 5) Communication, 6) Diversity, and 7) Depth, Breadth, and Integration of Learning. The methods and measures for each goal is summarized in the table.

<table>
<thead>
<tr>
<th>WSU Learning Outcome</th>
<th>Goal (by end of course)</th>
<th>Course topics that address the learning outcome</th>
<th>Evaluation</th>
</tr>
</thead>
</table>
| Critical and Creative Thinking | Assess the accuracy and validity of presented study results, define strategy to address posed challenges related to aging | • Technology assistance for other health issues  
• Research project | • Paper  
• Poster |
| Quantitative Reasoning | Grasp properties involved in psychological assessment; grasp methods of sensor-based data collection and analysis | • App design  
• Data visualization | • Homework assignment  
• Paper  
• Poster |
| Scientific Literacy | Identify issues related to aging, be aware of and understand state-of-the-art research in gerontechnology | • Mild cognitive impairment and dementia  
• Chronic health conditions  
• Guest lectures on current research | • Guest lecture summaries  
• Paper  
• Poster |
| Information Literacy | Be able to access and utilize literary resources to understand a gerontechnology challenge | • Research methods | • Paper  
• Poster |
| Communication | Present the results of a research project orally and in writing | • Paper presentations  
• Research project | • Paper presentation  
• Elevator talk  
• Paper  
• Poster |
| Diversity | Be aware of ethical issues related to gerontechnology; understand diversity of cultures in views on aging | • Guest lectures | • Guest lecture summaries |
| Depth, Breadth, and Integration of Learning | Understand issues related to practical application of technologies to address issues in aging | • Guest lectures on current research  
• Multi-disciplinary research project | • Guest lecture summaries  
• Paper  
• Poster |
Course Requirements and Grade Distribution - Undergraduate

(1) **Paper Presentation (15%).** You will read a research paper related to Gerontechnology and present a 20-minute summary of the paper to the class. We will provide you with a list of papers to choose from or you may propose a paper of your own choosing. Your topic three choices for paper selections are due January 25 and the presentations will be scheduled during class on March 21, March 28, April 4, and April 11. Your presentation should include a summary of the paper, a critique analysis of the approach and findings, and a discussion of ideas for continued work on the topic.

(2) **Summaries of Guest Speakers (20%).** We will bring in three experts this semester who will talk to the class about state of the art research in gerontechnology and their experiences in clinical application of the technologies. You will be required to write a one-page discussion of each of these invited talks. The write-up will include 1) a summary of the talk, 2) your ideas about how the speaker’s work could be extended in the future, and 3) a discussion of ways in which the speaker’s research utilized techniques we have been discussing in class.

(3) **Homework Assignment (10%).** You will be given one homework assignment to complete. This assignment will involve collecting and analyzing smartphone data while performing your own normal and scripted activities. *The completed homework assignment should be emailed to acrandal@wsu.edu by 9am on the due date.*

(4) **Research Project (45%).** Throughout the Gerontechnology II class, you will continue to contribute to an ongoing multi-disciplinary gerontechnology research project. You will present a poster at the end of the semester highlighting the project and your contributions and discuss your research results with visitors at the poster session. You will also submit a paper at the end of the semester detailing your research project and related findings.

(5) **Elevator Talk (5%).** A key skill that is needed when working in a multidisciplinary area such as gerontechnology is the ability to briefly and clearly communicate your research ideas to a diverse audience. You will prepare 2 minute summaries of your research project to give in class. You will receive feedback on your “elevator talk” from the class instructors as well as a visitor who has experience in this area.

(6) **Class Participation (5%).** You will be encouraged to ask questions, and expected to participate in class discussions.
Course Requirements and Grade Distribution - Graduate

(1) **Paper Presentation (15%).** You will read a research paper related to Gerontechnology and present a 20-minute summary of the paper to the class. We will provide you with a list of papers to choose from or you may propose a paper of your own choosing. Your topic three choices for paper selections are due February 1 and the presentations will be scheduled during class on March 21, March 28, April 4, and April 11. Your presentation should include a summary of the paper, a critique analysis of the approach and findings, and a discussion of ideas for continued work on the topic.

(2) **Summaries of Guest Speakers (15%).** We will bring in three experts this semester who will talk to the class about state of the art research in gerontechnology and their experiences in clinical application of the technologies. You will be required to write a one-page discussion of each of these invited talks. The write-up will include 1) a summary of the talk, 2) your ideas about how the speaker’s work could be extended in the future, and 3) a discussion of ways in which the speaker’s research utilized techniques we have been discussing in class.

(3) **Homework Assignment (10%).** You will be given one homework assignment to complete. This assignment will involve collecting and analyzing smartphone data while performing your own normal and scripted activities. *The completed homework assignment should be emailed to acrandal@wsu.edu by 9am on the due date.*

(4) **Research Project (50%).** Throughout the Gerontechnology II class, you will continue to lead an ongoing multi-disciplinary gerontechnology research project. You will present a poster at the end of the semester highlighting the project and your contributions and discuss your research results with visitors at the poster session. You will also submit a report at the end of the semester detailing your research project and related findings. Graduate students will be expected to not only contribute to the ongoing research project but to write a research paper highlighting their technology design or study findings. The paper should be written in journal format. The goal is to eventually submit the paper for publication to a Gerontechnology-related journal.

(5) **Elevator Talk (5%).** A key skill that is needed when working in a multidisciplinary area such as gerontechnology is the ability to briefly and clearly communicate your research ideas to a diverse audience. You will prepare 2 minute summaries of your research project to give in class. You will receive feedback on your “elevator talk” from the class instructors as well as a visitor who has experience in this area.

(6) **Class Participation (5%).** You will be encouraged to ask questions, and expected to participate in class discussions.
Differences between Undergraduate and Graduate Offerings of the Course
This course is offered as a 500-level course for graduate students as well as a 400-level course for undergraduate students. In addition to receiving an introduction to the field of gerontechnology for both graduates and undergraduates, the graduate students also need to receive a slightly more in-depth training experience in conducting multi-disciplinary research projects and writing research articles for multi-disciplinary journals. As a result, the graduate students will extend their research report into a draft version of a journal article that can eventually be submitted for publication. Graduate students will meet individually with the instructors (from multiple disciplines) to receive guidance on structuring the paper, analyzing collecting data, writing for multi-disciplinary audiences, and structuring a paper to be submitted to a multi-disciplinary journal.

Attendance
Weekly attendance is strongly encouraged. While students may miss class for urgent reasons, absences that are not cleared with the instructors will factor into the Discussion portion of the semester grade.

Weather policy
For emergency weather closure policy, see http://alert.wsu.edu.

Important dates and deadlines
Students are encouraged to refer to the academic calendar often to be aware of critical deadlines throughout the semester. The academic calendar can be found at http://www.registrar.wsu.edu/Registrar/Apps/AcadCal.ASPX.

Policy Regarding Late Work
Assignments are expected to be emailed by the listed due date and time. However, assignments that are turned in up to one day late will be accepted with a 10% grade penalty and assignments turned in up to two days late will be accepted with a 20% grade penalty. Assignments turned in more than two days late will not be accepted.

Students with Disabilities
Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please either visit the Access Center (Washington Building 217) or call 509-335-3417 to make an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center.
**Academic Integrity Policy:** http://www.conduct.wsu.edu

As an institution of higher education, Washington State University is committed to principles of truth and academic honesty. All members of the university community share the responsibility for maintaining and supporting these principles. When a student enrolls in Washington State University, the student assumes an obligation to pursue academic endeavors in a manner consistent with the standards of academic integrity adopted by the University. To maintain the academic integrity of the community, the University cannot tolerate acts of academic dishonesty including any forms of cheating, plagiarism, or fabrication. I will treat all such cases seriously, including class failure.

Washington State University reserves the right and the power to discipline or to exclude students who engage in academic dishonesty. To that end, the University has established rules defining prohibited academic dishonesty and the process followed when such behavior is alleged. These rules incorporate Washington State University’s Academic Integrity Policy, the University-wide document establishing policies and procedures to foster academic integrity. This policy is applicable to undergraduate and graduate students alike, as it pertains to dishonesty in course work and related academic pursuits. In cases of dishonesty in research and original scholarship, the University’s Policy and Procedural Guidelines for Misconduct in Research and Scholarship may take precedence over the policies and procedures contained herein.

**Safety Information:** Washington State University is committed to maintaining a safe environment for its faculty, staff, and students. Safety is the responsibility of every member of the campus community and individuals should know the appropriate actions to take when an emergency arises. In support of our commitment to the safety of the campus community the University has developed a Campus Safety Plan, http://safetyplan.wsu.edu. It is highly recommended that you visit this web site as well as the University emergency management web site at http://oem.wsu.edu/ to become familiar with the information.
## Course Calendar

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Due by 9am</th>
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<tbody>
<tr>
<td>1/11</td>
<td>Syllabus / Overview of GT research GT student panel</td>
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<tr>
<td>1/18</td>
<td>Mild cognitive impairment and dementia Lab</td>
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<tr>
<td>1/25</td>
<td>Mild cognitive impairment and dementia Guest speaker</td>
<td>Paper presentation choices</td>
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<tr>
<td>2/1</td>
<td>Socialization and caregiver issues Caregiver panel</td>
<td>Guest speaker summary</td>
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<tr>
<td>2/8</td>
<td>App design App lab</td>
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<tr>
<td>2/15</td>
<td>App design App lab</td>
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<td>2/22</td>
<td>Tremor analysis EBC surgery video and discussion</td>
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<tr>
<td>2/29</td>
<td>Human subjects IRB application lab</td>
<td>Homework assignment</td>
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<tr>
<td>3/7</td>
<td>Data visualization Visualization lab</td>
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<td>3/14</td>
<td>Spring Break</td>
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<td>3/21</td>
<td>Paper presentations Guest speaker</td>
<td>Homework assignment</td>
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<tr>
<td>3/28</td>
<td>Paper presentations Guest speaker</td>
<td>Guest speaker summary</td>
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<tr>
<td>4/4</td>
<td>Paper presentations Meet with teams</td>
<td>Guest speaker summary</td>
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<tr>
<td>4/11</td>
<td>Paper presentations Chronic health conditions</td>
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<tr>
<td>4/18</td>
<td>Technology assistance for other health issues Entrepreneurship, elevator talks</td>
<td>Elevator talk</td>
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<tr>
<td>4/25</td>
<td>Poster session Meet with grad students to discuss papers</td>
<td>Poster (due 4/22 9am)</td>
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<tr>
<td>5/2</td>
<td>Meet with grad students to discuss papers</td>
<td>Report Research paper (grads)</td>
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Books on Gerontology (optional resources)


Example Reading List: Will be updated


