EDUC 546: Design-based Thinking
Winter 2022 (Online)

Start and end date: January 10-February 10, 2022

On-line Instructor Information

<table>
<thead>
<tr>
<th>Section</th>
<th>Instructor</th>
<th>Time</th>
<th>Location</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>546.01/.02/.03 S20</td>
<td>Anthony Hampshire</td>
<td>16:30-18:00</td>
<td>Zoom</td>
<td><a href="mailto:aehampsh@ucalgary.ca">aehampsh@ucalgary.ca</a></td>
</tr>
<tr>
<td>546.01/.02.03</td>
<td>Rose Bene</td>
<td>18:00-19:30</td>
<td>Zoom</td>
<td><a href="mailto:rebene@ucalgary.ca">rebene@ucalgary.ca</a></td>
</tr>
<tr>
<td>546.04 S01</td>
<td>Marie-Claire Shanahan</td>
<td>16:30-18:00</td>
<td>Zoom</td>
<td><a href="mailto:mcshanah@ucalgary.ca">mcshanah@ucalgary.ca</a></td>
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<tr>
<td>546.04 S02</td>
<td>Nadia Delanoy</td>
<td>18:00-19:30</td>
<td>Zoom</td>
<td><a href="mailto:nadia.delanoy@ucalgary.ca">nadia.delanoy@ucalgary.ca</a></td>
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<tr>
<td>546.04 S04</td>
<td>Robin Persad</td>
<td>16:30-18:00</td>
<td>Zoom</td>
<td><a href="mailto:robin.persad@ucalgary.ca">robin.persad@ucalgary.ca</a></td>
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</table>

Zoom Class Meeting Dates for all online sections: January 11, 18, February 1, 8

Office hours: by appointment

Last day to add/drop/swap: Due to the non-standard dates associated with this program, please check your Student Centre for the important dates pertaining to your section.

Pre-requisite: Due to the multiple pathways in the Bachelor of Education, please consult Undergraduate Programs in Education for questions related to pre-requisite courses.

Email: Students are required to use a ucalgary.ca email address for all correspondence.

**COURSE DESCRIPTION**

This course is animated by a belief that new approaches to education are needed in the increasingly complex world of schools. Significant research suggests, however, that the cultural configurations of schools have not substantially changed in North America over the last century in terms of the organization, activity structures, and cultures of schools. Emerging literature proposes that theoretical principles from human-centered design fields can position educators as agents of change in the service of more preferable and possibly transformative educational futures. This literature emphasizes a need to move beyond technical rational approaches to design that involve limited exploration into the complexities and multiple dimensions of a problem, linear approaches to problem solving, and simplistic solutions. In its place, theory and research in design fields has called for a “designerly” stance towards exploring and addressing perplexing and context specific issues in education.

The purpose of this course is to come to better understand and engage in the various mindsets, principles, and processes associated with a designerly stance towards inquiry that includes:

(a) deeply exploring the perspectives, experiences, needs, and goals of stakeholders;
(b) engaging in ongoing cycles of ideation and iteration through multiple rounds of feedback; and
(c) “reframing” or “positioning” a design problem by stepping back and reconsidering the vantage points, perspectives, and metaphors employed to define the actual nature of the problem.

In this way, EDUC 546 provides opportunities to further strengthen and enhance design mindsets and processes that educators already engage in as a regular part of their professional practice. As Werklund
Professor of Design-Based Learning Dr. Douglas Clark asserts in this course trailer: [https://bit.ly/2JrGw7P](https://bit.ly/2JrGw7P), the question is not whether we as educators should engage in design, the question is whether or not we will engage in design effectively and consciously to better change existing situations into preferred ones for ourselves and for those around us.

LEARNER INTENTIONS

- Understand and develop capacities working with key design principles and mindsets associated with a designerly stance towards inquiry
- Understand how design models can be used to develop truly novel ways to address perplexing and unique problems in education connected to larger societal challenges
- Understand that problems cannot be solved from within the context and associated ways of thinking in which they arose
- Appreciate how design-based processes are being taken up and enacted in K-12 contexts across Alberta
- Experience being a reflexive practitioner who publicly shares and receives feedback to improve and strengthen ideas and works in progress

COURSE DESIGN AND DELIVERY: This course will be delivered online via Zoom in a D2L environment.

REQUIRED RESOURCES (IN ORDER OF APPEARANCE IN THE COURSE):


*Note:* E-book license permits only one online user at a time; per day, a user may print to PDF up to 111 pages.


LEARNING TASKS

<table>
<thead>
<tr>
<th>LEARNING TASK</th>
<th>DESCRIPTION OF LEARNING TASK</th>
<th>TYPE</th>
<th>WEIGHT</th>
<th>DUE DATE</th>
</tr>
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<tbody>
<tr>
<td>LT1: Facilitate a course reading using a discussion protocol</td>
<td>In this assignment each student will facilitate a discussion using a protocol to help their colleagues engage deeply with one of the required class resources.</td>
<td>Individual</td>
<td>30%</td>
<td>See online sign-up list</td>
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| LT2: Exploring a Perplexing Situation/ Problem Design Challenge | In this design challenge, small groups have the opportunity to explore a perplexing situation/problem encountered in their emerging professional practice. Modelled on the Double Diamond Model of Design, the assignment has two distinct phases:  
  - Discover and Define  
  - Develop and Deliver | Group | 50% | Discover & Define Phases: January 28  
Develop & Deliver Phases: February 10th |
| LT3: Evolving Understanding of Design in Education | In this assignment participants are asked to write a reflection at the end of the course on how their understanding of design has changed and evolved. | Individual | 20% | Post-Reflection: February 14th |

WEEKLY COURSE SCHEDULE

CHANGES TO SCHEDULE: Please note that changes to the schedule may occur to meet the emerging needs and dynamics of the participants in the course.

<table>
<thead>
<tr>
<th>Guiding questions:</th>
<th>Class readings and resources:</th>
<th>In class activities/ due dates:</th>
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<tbody>
<tr>
<td>Week 1 (Jan. 10-14)</td>
<td>Required Resources (RR)</td>
<td>Introductions, course and assignment overview of course:</td>
</tr>
<tr>
<td>Class Meeting #1: January 11</td>
<td>RR1: Dorst, K. (2015). Frame innovation: The frame creation model (Chapter 4: pp. 73-98). MIT (please read and take notes before coming to Class Meeting #1)</td>
<td>Sign up to facilitate one of the required resources</td>
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</table>
How can frame creation help avoid trying to solve a problem using the same ways of thinking that created, or exacerbated, the problem in the first place?

What principles underpin human centered design?

How is human-centered design different from other approaches to design in education such as Understanding-by-Design?

Supporting resources:
- Principles of human-centered design (Don Norman): [https://www.youtube.com/watch?v=rmM0kRf8Dbk](https://www.youtube.com/watch?v=rmM0kRf8Dbk)

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<tr>
<th>Week 2 (Jan. 17-21)</th>
<th>Required Resources (RR):</th>
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<tr>
<td></td>
<td>Discovering: <em>Empathizing with the user</em></td>
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Zoom Lecture: Dr. Douglas Clark – Werklund Professor of Design-Based Learning: *Reframing Design in Education*

**Read Dorst article prior to the first Zoom Class Meeting.**

1st discussion facilitation on Dorst

Begin work on LT2 identifying perplexing and unique situations/problems encountered in professional practice

2nd discussion facilitation on Norman article

Continue work and documentation for LT2

Engage in an empathy exercise with colleagues to discover possible needs and experiences of stakeholders

3rd discussion facilitation on CBC Radio article and podcast

Time for additional research including with potential stakeholders

View examples of design heuristic that highlight the messy, recursive and iterative nature of the design process
<table>
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<tr>
<th>Week 3 (Jan. 24-28)</th>
<th>Required Resources (RR):</th>
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<td><strong>Supporting resources:</strong></td>
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4th discussion facilitation on Schon reading

Zoom Lecture: Dr. David Scott and Dr. Douglas Clark: Frame Creation

Examine case studies of reframing wicked problems: 1) Indigenous education (Donald, 2011), 2) addressing urban violence (CBC News, 2019)

Engage in various strategies to reframe and reposition chosen perplexing situation: 1) analogy and metaphor, 2) new vantage points, 3) new conceptual lenses.

Time to work on LT2 documentation process including highlighting the recursive and iterative nature of the design process to date

**Learning Task 2 Discover and Define Phases due: January 28**

<table>
<thead>
<tr>
<th>Week 4 (Jan 31-Feb. 4)</th>
<th>Required Resources (RR):</th>
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<tr>
<td><strong>Supporting resources:</strong></td>
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Begin ideating possible design solutions

5th discussion facilitation on Langdon reading

Critically examine limitations and hidden assumptions behind emerging design solutions

Opportunities to connect with colleagues and outside experts to generate ideas and get multiple rounds of feedback on emerging design solutions
Week 5 (Feb. 7-10)

Class Meeting #4: February 8

How has human centered design been taken up by educators in Alberta?

How can designers in education effectively communicate the value of their design solutions to colleagues and the public more generally?

Required Resources (RR):


Supporting resources:

Why design thinking? https://vimeo.com/249752723


Read Quinn et al.

Begin work on creating a pitch to present your prototype at the end of class on-line showcase

Learning Task 2 Develop and Deliver Phases due: February 10th

EDUC 546 On-line Showcase: Feb. 8

Learning Task 3 Post-Reflection due on D2L by February 14th

**Learning Tasks and Assessment:** There are three required Learning Tasks for this course.

**Learning Task 1 (Individual: 30%)**: Facilitate a Course Reading Using a Discussion Protocol

DUE: See sign-up sheet ahead of Week 1

In this assignment, you are asked to work within a professional learning community created by your instructor to employ a discussion protocol to foster a deep understanding of one of the required course readings. The purpose of this task is to connect scholarly and theoretical principles from design studies to professional thinking and practices in education. The task is also meant to contribute to your design work in LT2.

You can choose a discussion protocol from suggestions below or create your own.


Specifically, you are asked to individually lead a small group of your colleagues through a 30-minute discussion protocol focused on a required resource. Over the course of facilitating this discussion, you are invited to introduce 3-4 key insights and accompanying quotes from the reading. You are also invited to introduce thought-provoking discussion questions designed to foster connections to design work in LT2. This may also be done in an asynchronous manner whereby you post a protocol that others have to follow in a discussion thread and monitor/respond to advance the conversation and deepen the thinking based on the content of your article.

Following discussion, each discussion leader provides a one page synthesis of the conversation to be posted on D2L within 48 hours of the discussion. DO NOT simply report on/summarize what the group said. Rather, the post discussion synthesis is designed to reflect a rich discussion, drawing together multiple insights, questions, and breakthroughs that helped your professional learning community deepen their understanding of design-based thinking. Further details will be discussed in class.

**Criteria for Assessment at the Exemplary Level for Learning Task 1**

**Facilitation Skills (Self-assessment):** Facilitation of 30-minute discussion protocol fostered an extremely deep and thorough understanding of key insights from required resource. Demonstrated extremely strong facilitation skills (e.g., actively engaged all members of the group, paraphrased and summarized thoughts and ideas when appropriate).

**Discussion Questions (Self-assessment):** The introduction of thought-provoking questions created a profoundly enlivened atmosphere involving active discussion, deliberation, and debate.

**Post Discussion Syntheses:** Synthesis of the group discussion was posted on D2L within 48 hours after leading the discussion. The post discussion synthesis summarized key insights, examples of practice, questions, and breakthroughs that helped the professional learning community deepen their understanding of design-based thinking.

**Learning Task 2 (Group 50%): Exploring a Perplexing Situation/Problem Design Challenge**

**Due: January 28th** - Discover and Define phases (25%)

**Due: February 10th** - Develop and Deliver phases (25%)

In this Task you are asked to digitally document, through a mix of both text and images, the process of working through a design challenge in small groups, exploring a perplexing and unique situation/problem emerging from the life world of schools. Documentation will occur within a Google doc ‘workbook’ organized around a set of rubrics emphasizing various themes associated with human-centered design. You are asked to include
no more than two-pages of documentation in relation to each theme. You will have the opportunity to self-assess your work using the rubrics provided within the workbook. Instructors will draw on this self-assessment to make a final summative evaluation.

The nature of this assignment draws on the Double-Diamond Model of Design (Norman, 2013) involving an iterative and recursive process where designers first engage in divergent thinking to explore a range of ideas and possibilities, before partaking in convergent thinking to refine and narrow down to the best ones.

As can be seen in the diagram at right (Stanwick, 2019), the cycle of divergence and convergence occurs two times — once to Discover and Define a problem, and a second time to Develop and Deliver novel solutions.

The design process is meant to be iterative and recursive both within each diamond, as well as between the two diamonds.

Discover and Define Phases (Group 25%)
Although you will be working in small groups, each group member is asked to individually document and contribute their process of working through the Discover and Define phases of the first diamond. A group Google doc ‘workbook’ has been designed for this purpose and will be provided by your instructor.

Documentation of your design process during these phases will focus on the following four themes:
(1) view of the problem space,
(2) approach to inquiry and stakeholder engagement,
(3) framing and frame creation, and
(4) conceptualization of the design process.

These themes overlap and interrelate with one another and share, in many instances, common elements. Thus, rather than seeing these four areas as separate and distinct, they can be thought of as overlapping and connected.

Criteria For Assessment at the Exemplary Level For of the Discover and Define Phases
(A Fully Articulated Rubric Will Be Distributed in Class)

View of the Problem Space (10): Perplexing situation or problem viewed as complex and dynamic (i.e., wicked). Ends to be achieved are perceived as ill-defined and confusing due to the presence of multiple
value conflicts. Well-developed articulation of deeper causal factors that underlie and may have given rise to the situation or problem. Focused on a unique dilemma or situation in education drawn from the lived reality of a particular educational context. Well-developed connections to how perplexing situation or problem is implicated in larger macro structures and societal challenges.

**Approach to Inquiry and Stakeholder Engagement (10):** Proceeds with the assumption that initial interpretation and knowledge about the situation or problem is incomplete and insufficient. Ongoing research to inquire further into the problem involves investigating multiple sources. Empathy is focused continuously throughout the process on the needs, interests, challenges, and perspectives of multiple stakeholders (i.e., students, teachers, parents, community members). Presents a fully articulated plan to engage stakeholders as partners in the design process.

**Framing and Frame Creation (10):** Repositions and reframes the problem by analyzing it through multiple metaphors, analogies, and/or vantage points. Creates well-developed novel and original frames drawn from often overlooked discourses and theoretical frameworks in education or other novel frames (e.g., feminist, ecological, critical theory, Indigenous). Problem ultimately reconceptualized from the original formulation with adaptations that are differences of kind rather than degree.

**Conceptualization of the Design Process (10):** Design process is deeply iterative and recursive. Problem to be solved or goal to be accomplished is itself actually envisioned from the beginning as part of the process of exploration/inquiry/design. Clearly articulates the messiness and ambiguity of the design process in terms of the challenges, dead ends, frustrations, and questions that emerged along the way.

**Develop and Deliver Phases (Group: 25%)**

In this part of the assignment, you are asked to document your work as a group. Documentation of your design process within the Develop and Deliver phases of the second diamond will focus on two key areas:

1. ideating and critically reflecting on possible design solutions and
2. pitching the three most novel design solutions.

Each group will have the opportunity to pitch their three best design solutions at an end of class on-line showcase.

**Criteria For Assessment at the exemplary Level For Of The Develop and Deliver Phases**

(A Fully Articulated Rubric Will Be Distributed in Class)

**Ideating and Critically Reflecting on Design Solutions (10):** Identifies a diverse array of ways perplexing situation or problem could be ‘solved’ ranging from the very practical, to the very difficult to carry out. Puts thought to form by sketching out promising ideas. Seeks out and receives multiple rounds of feedback on how promising ideas could be strengthened and improved. Was willing to ‘fail fast’ and quickly move on from ideas that received less than stellar feedback. When working to refine possible design solutions, deeply considers the assumptions being made about the context of the problem and the needs of the people involved, as well as the ways possible solutions may privilege, enable, and empower some people and groups but not others.
**Pitching Your Three Most Novel Design Solutions (10):** Offers a provocative anecdote that deeply connects audience to the *wicked* nature of the perplexing and unique situation or problem the group chose to explore. Pitch focusses on the most important aspects of the three most novel design solutions including the frame creation process that inspired their development. Clearly and succinctly describes refinements that occurred through the various formative feedback loops the group received. Creates substantive opportunities for the audience to participate in the conversation by eliciting their thoughts and asking questions.

**Learning Task 3 (Individual 20%):** Evolving Understanding of Design in Education

Due: February 14th

In this reflection (approximately 700 words), you have the opportunity to consider how your understanding of design in education has evolved and changed over the period of this five-week course. Your response to these questions should include multiple connections to the required course resources, cited in APA 7. Your reflection should address the following questions:

- How has your understanding of the role and nature of design in education changed and evolved over the course of the term?
- When you now consider how you will take up design in your future practice based on this new understanding, what are some specific examples of the kinds of activities and practices you plan to engage in?

**Criteria For Assessment at the exemplary Level FOR LEARNING TASK 3**
(A FULLY ARTICULATED RUBRIC WILL BE DISTRIBUTED IN CLASS)

**Depth of Reflection:** Demonstrates a clearly written, in-depth, and insightful reflection on, and personalization of, concepts and principles encountered throughout the course.

**APA:** All connections to the design literature cited correctly in APA 7 (both in text & reference list).
THE EXPECTATION OF EXCELLENCE IN PROFESSIONAL WORK

Please review the Academic Calendar carefully. It describes the program and provides detailed schedules and important dates. It contains information on expectations for student work and professional conduct. In addition, procedures are described regarding concern about student performance in the program. Please pay especially careful attention to details and descriptions in the following topic areas:

- **The Importance of Attendance and Participation in Every Class**

As this is a professional program, experiences are designed with the expectation that all members will be fully involved in all classes and in all coursework experiences. As you are a member of a learning community your contribution is vital and highly valued, just as it will be when you take on the professional responsibilities of being a teacher. We expect that you will not be absent from class with the exception of documented instances of personal or family illness or for religious requirements.

- **Engagement in Class Discussion and Inquiry**

Another reason for the importance of attendance and participation in every class is that the course involves working with fellow students to share ideas and thinking. For example, each class you will work with a small group to engage fellow students in discussions on work being considered in class. You will also help other groups by providing ideas for scholarly inquiry in assignments. If you find that you are experiencing difficulties as a group collaborating, please inform the instructor.

**EXPECTATIONS FOR WRITING**

All written assignments (including, to a lesser extent, written exam responses) will be assessed at least partly on writing skills. Writing skills include not only surface correctness (grammar, punctuation, sentence structure, etc.) but also general clarity and organization. Sources used in research papers must be properly documented. If you need help with your writing, you may use the writing support services in the Learning Commons. For further information, please refer to the official online University of Calgary Calendar, Academic Regulations, E. Course Information, E.2: Writing Across the Curriculum: [http://www.ucalgary.ca/pubs/calendar/current/e-2.html](http://www.ucalgary.ca/pubs/calendar/current/e-2.html)

**LATE SUBMISSIONS**

All late submissions of assignments must be discussed with the instructor **prior to the due date**. Students may be required to provide written documentation of extenuating circumstances (e.g. statutory declaration, doctor’s note, note from the University of Calgary Wellness Centre, obituary notice). A deferral of up to 30 days may be granted at the discretion of the Associate Dean of Undergraduate Programs with accompanying written evidence.

**ISSUES WITH GROUP TASKS**

With respect to group work, if your group is having difficulty collaborating effectively, please contact the instructor immediately. If a group is unable to collaborate effectively or discuss course materials online in a timely manner, the instructor may re-assign members to different groups or assign individual work for completion.
GRADING

<table>
<thead>
<tr>
<th>Grade</th>
<th>GPA Value</th>
<th>%</th>
<th>Description per U of C Calendar</th>
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<tbody>
<tr>
<td>A+</td>
<td>4.0</td>
<td>95-100</td>
<td>Outstanding</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
<td>90-94</td>
<td>Excellent – Superior performance showing comprehensive understanding of the subject matter</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td>85-89</td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
<td>80-84</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td>75-79</td>
<td>Good - clearly above average performance with knowledge of subject matter generally complete</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
<td>70-74</td>
<td></td>
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<tr>
<td>C+</td>
<td>2.3</td>
<td>65-69</td>
<td>Satisfactory - basic understanding of the subject matter</td>
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<tr>
<td>C</td>
<td>2.0</td>
<td>60-64</td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
<td>55-59</td>
<td></td>
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<tr>
<td>D+</td>
<td>1.3</td>
<td>52-54</td>
<td>Minimal pass - Marginal performance</td>
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<tr>
<td>D</td>
<td>1.0</td>
<td>50-51</td>
<td></td>
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<tr>
<td>F</td>
<td>0.0</td>
<td>49 and lower</td>
<td>Fail - Unsatisfactory performance</td>
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A grade of A+ may be assigned at the instructor’s discretion to work of rare and exemplary quality.

Students in the B.Ed. program must have an overall GPA of 2.5 in the semester to continue in the program without repeating courses.

Academic Accommodation
It is the student’s responsibility to request academic accommodations according to the University policies and procedures listed below. The student accommodation policy can be found at: [https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf](https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Accommodation-Policy.pdf). Students needing an accommodation because of a disability or medical condition should communicate this need to Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities: [ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf](https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf). Students needing an accommodation in relation to their coursework based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to their Instructor.

Academic Misconduct
For information on academic misconduct and its consequences, please see the University of Calgary Calendar at [http://www.ucalgary.ca/pubs/calendar/current/k.html](http://www.ucalgary.ca/pubs/calendar/current/k.html)

Attendance/ Prolonged Absence
Students may be asked to provide supporting documentation for an exemption/special request. This may include, but is not limited to, a prolonged absence from a course where participation is required, a missed course assessment, a deferred examination, or an appeal. Students are encouraged to submit documentation that will support their situation. Supporting documentation may be dependent on the reason noted in their personal statement/explanation provided to explain their situation. This could be medical certificate/documentation, references, police reports, invitation letter, third party letter of
support or a statutory declaration etc. The decision to provide supporting documentation that best suits the situation is at the discretion of the student.

Falsification of any supporting documentation will be taken very seriously and may result in disciplinary action through the Academic Discipline regulations or the Student Non-Academic Misconduct policy.

https://www.ucalgary.ca/pubs/calendar/current/n-1.html

The Freedom of Information Protection of Privacy Act prevents instructors from placing assignments or examinations in a public place for pickup and prevents students from access to exams or assignments other than their own. Therefore, students and instructors may use one of the following options: return/collect assignments during class time or during instructors’ office hours, students provide instructors with a self-addressed stamped envelope, or submit/return assignments as electronic files attached to private e-mail messages.

For additional resources including, but not limited to, those aimed at wellness and mental health, student success or to connect with the Student Ombuds Office, please visit https://www.ucalgary.ca/registrar/registration/course-outlines

Education Students Association (ESA) President for the academic year is Kyle Corry, esa@ucalgary.ca.

Werklund SU Representative is Dwani Joshi, educrep@su.ucalgary.ca.