

TEACHING DOSSIER

of

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1. Brief Biography

My name is Rebecca Doyle. I am a PhD candidate in the Department of Geography at The University of Western Ontario (Western) studying the geochemistry of lake sediments. I have submitted dissertation and am scheduled to defend my thesis on Dec 9, 2020. Throughout my five-year graduate career, I have enjoyed working as a teaching assistant (TA) in the Department of Geography. My roles as a TA included grading assignments, conducting labs and tutorials, organizing field trips and, in the last two years, lecturing. In addition to working as a TA, I also developed my teaching abilities by volunteering to be a peer mentor in my laboratory, talking to school groups about climate change and giving invited lectures about past climates. I was recently hired to be the course instructor of Geography 1300B (Introduction to Physical Geography) at Western from January to April 2021. Due to the COVID-19 pandemic, I have moved this course online. The course now features synchronous laboratory exercises and asynchronous lessons.

2. Teaching Philosophy Statement

Introduction

“Rebecca consistently goes above and beyond the requirements of her position to support learning within and outside the capacity of the course. She is always willing to share resources and provide guidance, both on assignments and other related projects. She has developed working relationships with the students in the class and is a mentor to many. She is always prepared and well organized and has played a key role in increasing my knowledge and interest within the field of paleolimnology.”

(4th year student, Graduate Teaching Assistant Award Nomination, 2019)

This powerful comment exemplifies my overarching goals for undergraduate learning. As an educator, my highest priority is to spark students' interest in geography and to maintain that interest throughout the term. To achieve this goal, I focus on (i) fostering critical thinking, (ii) practicing active learning, (iii) using a strengths-based approach to assessment, (iv) developing transferrable skills and (v) creating an inclusive learning environment. Teaching critical thinking skills helps to engage students because it forces them to question assumptions in their everyday life. Active learning helps maintain student interest by encouraging them to explore theoretical concepts through an applied lens. Utilizing different methods of assessment – a “strengths-based approach” – challenges students but also offers them the chance to showcase their strengths, keeping them engaged with the course material. Teaching transferrable skills can help maintain the interest of students who might not want to become professional geographers since these skills are applicable to many careers. Creating an inclusive learning environment is also central to maintaining student motivation. In the following sections, I elaborate on each of these strategies and provide evidence of their use in my classroom.

Fostering critical thinking

In my first-year class, Geography 1300B: Introduction to Physical Geography, I engage the interests of students and develop their critical thinking skills by making direct connections between news items and the course content. As a geographer, I am fortunate to work in a dynamic field that dominates the news cycle. Topics such as climate change, earthquakes and famines are engaging to students and can be used as a starting point to foster class discussion about core concepts in geography such as the greenhouse effect, plate tectonics and nutrient cycling. News items are also useful for encouraging students to critically examine information. I ask students to answer a variety of questions about a set of news articles: (i) who is the author of the article and what are their credentials? (ii) Can you identify any of the authors' biases? (iii) Does the author cite their sources? If so, do you think that their sources are reliable? (iv) Was this article written recently? (v) Is there anything else that makes you trust or distrust this article? Answering these questions not only teaches students how to spot misinformation; it also lays the foundations for critically examining journal

articles. If I were to teach an upper-year class, I would invite students to use these same skills to interrogate academic journal articles instead of news articles. It is important that students are able to engage with journal articles because such articles are the primary mode that academics use to convey new ideas and engage in academic discourse.

Practicing active learning

Active learning is central to maintaining student interest in the course material. In today's technologically driven world, facts and tables are easily accessible via cell phone. It is therefore more important than ever that students grapple with concepts at a deeper level rather than simply reading them in a textbook. In my online course, active learning is primarily accomplished during laboratory exercises. In the attached laboratory exercise, "Lab 1: Investigating Martian Maps" (Appendix A), students learn how to read topographic maps, create their own maps and manipulate data within the Google Earth environment. These applied skills build on the theoretical mapping concepts taught in class (e.g., map projections and datums), helping to solidify abstract concepts. In my online course, I also encourage active learning by incorporating interactive activities into weekly, asynchronous lessons. Using the software H5P, I create interactive html5 content to embed in my weekly lessons. Each lesson, for instance, ends with an "active summary". This activity asks students to select the correct statement from a series of incorrect statements. At the end of the activity, the correct statements appear in one list, creating a summary of the most important points from that lesson. This activity helps students test their knowledge while also indicating which points I think are the most important for students to learn. If I were to teach an upper-year course, I would teach active learning by creating labs that teach students to analyze their own data and compile their results in a written report.

Utilizing a strengths-based approach to assessment

When I was a first-year undergraduate student enrolled in large introductory science classes, I remember feeling frustrated that the primary method of assessment was multiple choice exams. I struggled with multiple-choice exams but excelled in assignments and projects. Once I began taking courses which featured diverse methods of assessment, my confidence and interest in the course material grew. This experience encouraged me to incorporate diverse methods of assessment into my lesson plan. In Geography 1300B, students are evaluated using the following methods: online discussions, written assignments, laboratory exercises and a take-home exam. Each of these methods of evaluation requires a different skill set. This way, students are challenged but also feel that their unique strengths are being showcased.

Developing transferable skills

Many students at Western take geography courses as an elective rather than a required course. Consequently, many students can become disengaged if a geography course is focused on memorizing material that students may not use in their future careers. To maintain student engagement, I therefore focus on building transferrable skills that are applicable to all students. Students in my course gain the following transferrable skills: (i) manipulating data in Excel, (ii) plotting data in a graph; (iii) teamwork and (iv) communicating complex ideas to a non-expert audience (i.e., Grade 12 reading level). Items (i) to (iv) are primarily accomplished during labs, where students grapple with data in small groups. Item (iv) is accomplished when students work on an assignment focused on communicating a concept in physical geography (e.g., climate warming, deforestation, the nitrogen cycle) to a general audience.

Creating an inclusive learning environment

One challenge I am keen to address is making physical geography more accessible to groups of people traditionally underrepresented in STEM disciplines, including women, LGBT+ students, students with disabilities, poor students and students who identify as BIPOC (Black, Indigenous and People of Colour). As a white, middle-class, able-bodied, straight, cisgender woman, I have not experienced many of the struggles encountered by students studying to become STEM professionals. It is therefore especially important that I

learn strategies for decolonizing my pedagogy and unlearn approaches to teaching that are rooted in ableism, classism, heteronormativity and white supremacy. This process of learning (and unlearning) will be lifelong; however, I have already begun to take steps in the right direction by attending workshops at Western's Teaching Support Centre. There, I learned strategies to develop a culturally affirming teaching practice, to prepare a diversity statement and to introduce sensitive topics that might be triggering to students (*e.g.*, natural disasters).

In Geography 1300B, I am implementing several of the strategies that I learned at the Teaching Support Centre. For instance, I begin the course with a land acknowledgement and incorporate videos of Indigenous scholars conveying their traditional teachings into the course content so that students learn to conceptualize the land from multiple perspectives. At the beginning of the course, I disclose my pronouns (she/her/hers) to the class and, through a survey, offer the students the opportunity to disclose their pronouns. Importantly, I also ask what pronouns I should call them in front of other students. I also seek out videos created by non-white educators so that my students are aware that many BIPOC scientists are leaders in the field. I strive to make my online course accessible by close captioning all required videos for deaf students and including image descriptions for blind students. Finally, I provide four opportunities throughout the course for students to provide anonymous feedback on what they like about the course, what they want me to stop doing and what I can do better in the future. Here, I encourage students to educate me on how I can make the course more accessible to them and/or how I can make my pedagogy more inclusive.

3. Teaching Experience

3.1 Course instructor at Western

Winter 2021

- GEOG 1300B (Introduction to Physical Geography)
 - Converted this in-person class to an online class during the COVID-19 pandemic
 - Developed labs that can be completed online and synchronously
 - Developed asynchronous, self-paced lessons featuring html-based, interactive quizzes and activities

3.2 Teaching assistantships at Western

Fall 2019, Fall 2018

- GEOG 3352A/9216A (Paleolimnology and Global Environmental Change)
 - Co-led a field trip to Tumbleson Pond and was solely responsible for teaching students to map the bathymetry of the pond
 - Preparation of lab materials; co-supervised and instructed lab exercises and tutorials
 - Graded assignments (*e.g.*, poster presentations)
 - Assisted students during office hours and over email

Winter 2019

- GEOG 3350B (Environmental Change)
 - Graded assignments (*e.g.*, oral presentations, blog posts and exams)
 - Assisted students during office hours and over email

Winter 2018, Winter 2016

- GEOG 2133B (Climate Change)
 - Graded assignments (*e.g.*, lab reports)
 - Assisted students during office hours and over email

- GEOG 2152 (Geography of Hazards)

Winter 2017

- Graded assignments (*e.g.*, essays)
- Assisted students during office hours and over email

- GEOG 2144A/B (Geography of Tourism)

Fall 2016, Fall 2015

- Graded assignments (*e.g.*, personal reflections)
- Assisted students during office hours and over email

3.3 Guest lectures

- Two lectures to the class of GEOG 3352A/9216A on geochronology and lake types

Fall 2019

- Two lectures to an oceanography class at the Community College of Rhode Island on paleoenvironmental reconstructions using marine sediments

Fall 2019

- One lecture to the class of GEOG 2133B on paleoenvironmental reconstructions

Winter 2018

3.4 Connecting with the global community

- Two 30-60 min sessions answering questions about climate change: one session with an eighth-grade class in Middletown, New Jersey (USA) and another session with a fifth-grade class in Melbourne, Victoria (Australia)

Fall 2019- present

- I exchange regular letters about science with a sixth-grade student in a low-income school in Chicago (USA)

Fall 2019- present

3.5 Mentorship

- I am a peer-mentor to another PhD student in my lab, meaning that I help to solve technical challenges in the laboratory and offer emotional support when needed

Fall 2018- present

4. Training at Western's Teaching Support Centre

4.1 Webinars

- Gender Pronouns and Teaching
- Preparing Diversity Statements
- Leadership in Wellness, Part 1
- Leadership in Wellness, Part 2
- Developing a Culturally Affirming Teaching Practice
- Teaching Sensitive Topics Online
- Articulating Your Teaching Philosophy

Mar 2020

Mar 2020

Jun 2020

Jun 2020

Jun 2020

Jun 2020

Oct 2020

4.2 Teaching Master Classes

- Teaching Master Class in Geography

Mar 2020

4.3 Fall Perspectives on Teaching Conference

- Moving Beyond Culture-Blind Approaches to Mental Health and "Birds of a Feather" focus group
- Keynote by Dr. Robyn Hanley Dafoe and "Birds of a Feather" focus group

Sep 2020

Sep 2020

4.4 Programs

- Teaching Mentorship Program
- Teaching Assistant Training Program

Nov 2015

Aug 2016

5. Evidence of Effective Teaching: Teaching Evaluations

1 = strongly agree, 2 = agree, 3 = neither agree nor disagree, 4 = disagree, 5 = strongly disagree

Abbreviated questions	Mean (Fall 2019)	Mean (Fall 2018)	Mean (Winter 2018)	Mean (Winter 2016)
1. Was the teaching assistant available?	1.1	1.1	1.4	1.5
2. Were tutorials/labs well-organized?	1.1	1.3	2.0	No lab/tutorial
3. Were tutorials/labs clearly presented?	1.5	1.2	1.6	1.8
4. The TA provided help that was clear and useful?	1.3	1.2	1.8	1.7
5. The Teaching Assistant's marking was fair?	1.3	1.1	1.5	1.7
6. Assignments were marked in a timely manner?	1.2	1.3	1.3	1.5
7. Overall, the Teaching Assistant was effective?	1.2	1.0	1.4	1.6
8. This TA deserves a Geography TA Award.	1.2	1.1	1.8	1.7

*To my knowledge, these data represent all the teaching evaluations I have received

6. Evidence of Effective Teaching: Unsolicited Student Feedback

This unsolicited student feedback was sent to the Department of Geography and Environment as part of their routine assessment of teaching assistants.

6.1 Goes above and beyond

- "Rebecca consistently goes above and beyond the requirements of her position to support learning within and outside the capacity of the course."
- "Goes above and beyond what is expected."
- "She ... went above and beyond to find the answers to questions she didn't have initially."

6.2 Enthusiastic

- "Rebecca is highly enthusiastic about paleolimnology and in being so happy about it, makes me want to increase my knowledge on the topic."
- "Rebecca was extremely enthusiastic about the material which made learning much more enjoyable!"
- "She is excited about the course content and is extremely knowledgeable."
- "Rebecca is super enthusiastic about [paleolimnology] and is always willing to help."
- "Very excited about the material and extends learning beyond the scope of the course."
- "Rebecca's enthusiasm and passion for the course material was evident and infectious."
- "I loved Rebecca's level of enthusiasm with the material, it made my learning experience more enjoyable!"

6.3 Helpful

- "Overall one of the best and most helpful TAs I have ever had."
- "I really appreciate all the help she's given and the support she's provided. I truly think this course would have been extremely difficult had Rebecca not been our TA."

- “Rebecca always responds to questions clearly, and thoroughly, often times sharing her own research or academic experience to help students understand in more than one way.”
- “She is always willing to share resources and provide guidance, both on assignments and other related projects.”

7. Evidence of Effective Teaching: Unsolicited Instructor Feedback

This unsolicited feedback was sent directly to me via email following guest lectures and question and answer periods.

7.1 Feedback from Morgan Haldeman, Lecturer at The Community College of Rhode Island (Invited Lectures)

“That. Was. Amazing. Thank you SO much. I had students who were absolutely enraptured in everything you were saying – my ‘headphones all class’ student even kept their headphones off (a Monday miracle, let me tell you!!! We’ve touched on some of what you were saying before but hearing it from another person who is able to answer questions more thoroughly than I (as well as with -great- analogies!) really helped cement a lot of the concepts. [...] Even more seriously, I had a student who came up to me afterwards wanting to pass on her thanks to you. Your story about your chemistry woes really touched her, and I think it made science feel more accessible to her and to many of my other students. As soon as you started speaking about it, my heart went a-flutter – remembering that life often includes failures and comebacks is an important message, but it is so much more memorable and relatable when it comes from someone who is ‘high up’ in that perceived academic/professional hierarchy. So thank you for that.”

7.2 Feedback from Lauren Velez, Eighth Grade Teacher at Middletown Township Public Schools (New Jersey, USA) (Climate change Q&A)

“Thank you again! We learned so much and you were able to really capture the kids interest and explain things to them in a way they were really able to understand. This was my first Skype a scientist and it was a wonderful experience.”

7.3 Feedback from Tiahn Syme, Fifth Grade Teacher at Menzies Creek Primary School (Victoria, Australia) (Climate change Q&A)

“That was brilliant, thank you!”

8. Appendix A: Sample Laboratory Exercise, Course Evaluations and Award Nominations