The structure of a Teaching Statement

I. Introduction
II. Teaching strategies in the classroom
III. Mentoring experience
IV. Reflections and growth
I. Introduction

Without formally splitting content in smaller subsections, try to include each of the following:

- Summary of your teaching experience.
- Summary of the distinctive features of your teaching.
- Summary of your experience as a mentor.

About a third of a page or less.

Does not need a specific title (no need to label it “Introduction”)

Must communicate both your experience and your strength as an instructor and as a mentor.

It is the GIST of your teaching statement. Someone who only reads the introduction must be able to get a complete idea of your potential as an instructor.
Examples

❖ Summarize your teaching experience. GOAL: Emphasize breadth
  • List courses you TAed for. Do not use labels like Math 2B, but rather list courses by topic (Single-variable Integral calculus)
  • Mention range of class levels (you may group them in lower div/upper division/graduate courses)
  • Mention range in class sizes (this is important!)
  • Have you served as the main instructor of a course? If so, mention it here
  • Mention awards, if any (teaching awards, or other awards that involve a teaching component)

Over the course of five years as an educator, I have instructed over 900 students at all levels of university mathematics. During the COVID-19 pandemic, as the instructor of record, I taught Calculus for the Life Sciences, a virtual calculus course for biological science majors. As a teaching assistant, I have led discussion sections for the entire calculus course sequence, taught upper division courses, and in 2017, I accepted the math department’s offer to be the first ever teaching assistant for their graduate complex analysis course. In 2019, I won my department’s Outstanding Teaching Assistant of the Year Award.
2. Summarize the distinctive features of your teaching (you will be expanding upon this in the rest of the statement) and the key points of your teaching philosophy.

- different techniques, and I excel at relating to students from all backgrounds. My teaching style will thrive in a liberal arts environment that values small classroom sizes, individualized attention, and a strong collaborative culture.

In all courses, I emphasize problem solving and communication; developing these skills is just as important as developing math proficiency, especially in courses for non-majors. I am interested in bringing technology into the classroom as it has the potential to make courses feel more accessible and engaging to students. Lastly, I support all students – my goal as a teacher is to help ensure students walk away from the course with new knowledge and increased confidence in their mathematical ability.
Examples

❖ Summarize your experience as a mentor (math department peer mentoring program, directed reading program, Math CEO mentor, etc.)

Graduate and graduate students as well as over 200 middle and high school students. I have been a Teaching Assistant for eight separate lower- and upper-division courses over 15 quarters, and currently I am a reading mentor for a Directed Reading Program course in random matrix theory. Additionally, as a COMP (Community, Outreach, and Mentoring Program) Fellow with the math department, I am responsible for managing the Peer Mentor program, and I organize and co-lead with invited speakers a weekly graduate seminar covering topics relating to Inclusive Excellence and Diversity, such as *History of Women in Math*,
II. Teaching strategies in the classroom

This is the most important section of your statement.

You want the reader to “see” what happens in your classroom.

Don’t just talk about abstract principles!

For each pedagogical strategy you mention

- Introduce the strategy
- Explain *why* you use it (look at the literature: why is it known to be beneficial?)
- Explain *how* you use it and give concrete examples
- Include *quotes from students* praising that strategy, if available
- Include your *reflection*: do you feel that strategy benefited the students? What outcomes did you notice? What change would you recommend to improve outcomes? Do you do anything differently depending on class size or level of students?
Don’t just talk abstract principles!

Example

This is also a good time to make connections between the mathematical concepts and other areas of math and/or science. For instance, in an introduction to probability course, connections can easily be made to algebra (binomial theorem, combinatorics), analysis (measure theory, integrability), computer science (programming, stochastic processes), social science (data analysis, statistics) and so on. From informal student feedback, I have found that this helps begin the day on the right foot as well as motivates the students to actively participate in the rest of the class. The second step is to demonstrate example problems, with a particular
You want the reader to be able to picture what you do as a teacher.

Talk about specific activities.

Include artifacts. Examples:
- When talking about active learning, include a sample of a question you used for groupwork which promotes inquiry and discussion
- When talking about creating a welcoming learning environment, include sample of a message to students.

If you are videotaping your discussions, look for clips showing a specific strategy or take screenshots of your work/student work.
Be concrete!

I decided to focus on concepts rather than procedures, and to make use of hands-on explorations as a tool to visualize and understand calculus ideas. For instance, one day I brought to class a set of 3D-printed shapes (they were all solid of revolutions) and asked students to brainstorm ideas to compute their volume. The students who had taken integral calculus vaguely remembered the existence of a formula to accomplish this task, but a) had no recollection of what the formula was, b) they had no function to apply the formula to, and c) they had no grasp of the mathematical thought process behind that formula. I then gave the class a discretized version of the solid, made up of a collection of (3D-printed) disks linked together by a metal rod. A beautiful A-HA moment followed! Students realized that the sum of the volumes of the disks was a good approximation of the desired volume and were absolutely thrilled to find out how close their estimate was to the actual value. That was a powerful teaching moment. I gave students the graph of the function y=f(x) generating the solid of revolution (intentionally omitting the algebraic expression for f(x)) and challenged them to find a mathematical formulation for the volume. Working together, the class discovered the disk method for calculating the volume of a solid of revolution, and wrote a precise formula for it.

This freshman seminar was a milestone in my teaching career, because it confirmed what I had been noticing in K-12 math circles for a while: if I want my students to solidify a conceptual understanding and long-lasting knowledge of mathematical ideas, I must give them opportunities to engage in a process of discovery and I must challenge them to think about the material at a deeper level. This seminar experience also showed me the power of collaboration. Students were constantly building on each other’s ideas, making the learning experience stronger and more pleasant.
Back up your claims: Include quotes mentioning that specific strategy

Example

It is also important to emphasize the skill of problem solving in all math classes, but especially in the lower division courses since a large proportion of the student population in these courses are non-majors. When going over a problem in calculus, I carefully explain my thought process before writing down the next step. For example, when looking at an integration problem, I carefully explain why each piece of the function could or could not possibly work as the $u$ in a $u$-substitution problem. If the students are given the process rather than just the answer, they will become better problem solvers, not just experts at solving that single problem. One student summed up my philosophy well:

*She gave clear step-by-step strategies for each type of problem as much as possible ... She also pointed out ways that students can make mistakes on a certain problem and fully explained computations that may not always be obvious. Overall, she made learning calculus a lot easier and more interesting than I thought it would be.*
Think out the box!

You want people to remember something unique from your teaching statement.

Probably many people will mention things like
• Active learning
• Creating a welcoming learning environment

That is good, and you should do so as well, but... Go beyond!

Think of what makes you unique as an instructor: Also include “less standard” approaches teaching that distinguish you from fellow instructors.

[Not sure what? Read teaching evaluations carefully. Students are good at noticing instructors’ unique skills.]
Include a few “less standard” approaches teaching that distinguish you from your fellow instructors.

Example

- **Proportional grading** or “fallacy of the zero”: This ensures that each potential grade category on an assignment is equally weighted. Due to course constraints for which grading is points based, I implement this on assignments I grade by equally starting students at 50% on an assignment (assuming a student makes an effort), and distribute the remaining points by mastery of learning objectives. Students have always been appreciative of my grading philosophy:

  Very fair grader and quizzes were not too challenging or too easy and sometimes there would be a for fun question that didn’t affect our grade. I especially like his grading policy which is that he didn’t believe in giving 0s. I agree with his reasoning.
Include a few “less standard” approaches teaching that distinguish you from your fellow instructors.

Example

In order to evaluate the effectiveness of my teaching and the students’ understanding of the material, different ways of assessing student learning in the classic classroom environment are important. In addition to using in-class or in-discussion worksheets (that may or may not be turned in), one tool I like to use approximately once a week in larger classes is an online game-based learning platform called Kahoot. Before class, I will make a basic quiz that covers important conceptual questions or small example problems about the current class material. Kahoot makes the quizzes fun for the students because they are assigned points based on the number of questions they get correct and their speed of response. After the quiz is over, I can download a detailed quiz report (which helps me gauge their understanding of the material) and the concepts or problems that were most difficult are then transformed into the example problems in the next discussion section.
Include a few “less standard” approaches teaching that distinguish you from your fellow instructors.

3. Activities to explain, motivate, and/or connect material (Pillars I, III, IV)

Mathematics is a diverse and well-connected subject. Unfortunately, many students operate under the belief that courses (and sometimes topics within the same course) are separate and largely unrelated. I believe that this greatly hinders the student learning experience, so I make an effort to connect “new” and “old” material together. For example, at UCI single-variable calculus is taught in Math 2A. Two courses later, students learn multivariable differential calculus in UCI’s Math 2D course. One of the Math 2D topics is finding the equation of the tangent plane to the surface $f(x, y)$ at the point $(x_0, y_0, z_0)$. This multivariable topic can be linked to the single variable topic, which can in turn be linked to a basic Algebra topic:

From Algebra:

\[
\begin{align*}
y - y_0 &= m(x - x_0) \\
m &= \text{change in } y \text{ per one-unit change in } x
\end{align*}
\]

From Math 2A:

\[
\begin{align*}
y - y_0 &= f'(x_0)(x - x_0) \\
f'(x) &= \text{change in } y \text{ per one-unit change in } x
\end{align*}
\]

From Math 2D:

\[
\begin{align*}
z - z_0 &= f_x(x_0, y_0)(x - x_0) + f_y(x_0, y_0)(y - y_0) \\
f_x &= \text{change in } z \text{ per one-unit change in } x \\
f_y &= \text{change in } z \text{ per one-unit change in } y
\end{align*}
\]

For students in Math 2D, the point-slope form from Algebra is easy to recite; from there, they can easily recall the equation for the tangent line to a graph from Math 2A. Therefore, I will start the lesson with a group worksheet where students review these simple concepts. After the students have had time to refresh their older knowledge, we go over the worksheet as a class and I can segue smoothly into equations of tangent planes. By allowing the discussion of old material to develop into a discussion of new material, Math 2D students can see the relationship between three different courses. Furthermore, the ideas of “tangent lines” and “tangent planes” are presented as simple extensions of the point-slope formula for Algebra, which makes them seem much more accessible to students. I am particularly proud of the tangent-plane activity and discussion because it is a nice
Don’t just say what you do: explain why you do it.

Example

When explaining a new concept, I try to balance the big picture with the details. When teaching algorithms in my optimization class for example, I explain what the algorithm is trying to accomplish, describe what general steps would allow us meet the end goal, how one step naturally follows from another, go over each step in detail, and then emphasize the point of the algorithm by recalling the big picture. Students should learn to make connections on their own so that the need for each major step of a problem is not only well understood, but indicates what to do next. I want them to avoid blindly memorizing an instruction manual for each type of problem as the benefit of that knowledge is limited to one very specific question. Math is logical; each stitch opens up possibilities for where to go next, and problems should be solved one stitch at a time.
People on the committee not always read these statements in details.

Make it easier for them to scan the document and get the key ideas.

Have separate paragraphs, separated by empty lines, corresponding to different strategies or teaching experiences.

*One strategy (or teaching experience) per paragraph.*

*Start each paragraph with a descriptive word/phrase in bold.*
Teaching strategies in the classroom

Examples of formatting

Reflective Teaching Statement

Teaching mathematics at the college and pre-college level is my passion, and I am fortunate to be in a position to dedicate my career to the education of an incredibly diverse set of students. Beyond teaching several undergraduate math courses at UCL, I have extensive experience teaching math enrichment sessions for middle school students (math circles), and have been involved in training K-12 students, graduate student TAs, as well as undergraduate mentors and math circle facilitators. Herein, I will focus mostly on my undergraduate teaching, but all my pedagogical explorations are deeply connected. Reflecting upon how my teaching style has evolved, I realize that my experience with math circles for pre-college students has deeply impacted the way I teach mathematics to our UCL undergraduates.

Inquisitive math circles

Math circles bring mathematicians into direct contact with K-12 students to help them explore mathematics in an engaging, open-ended format. Participants work in groups to explore, create, and communicate mathematics through problem solving and interactive exploration. Deep technical costs of discussion (e.g., a discussion is included in its "Other Documents". I am also a strong advocate of the use of Learning Assistants (LAs) to facilitate active learning in the classroom. Not only do I use LAs in my own course; I worked hard to advocate and implement active learning teaching strategies across our graduate students, and I hosted a travel workshop from the Academy of Mathematics and Learning to give talks at the "math circle" in my "Math Teaching as Research project" which led to the implementation of active learning in linear algebra discussion sessions.

Questioning

When students are not completing worksheets with their peers, I actively engage the class through frequent questions, to the point that the lesson may resemble a traditional lecture as much as a conversation. Whenever possible I encourage students to predict the most accurate proof method for proving a given theorem, and to guess what the next step is in a calculation should be for a calculation that is not completed in class.

Continuous growth

Of course, active learning instruction incurs its own challenges. Pacing the class is harder, for example, than in a traditional lecture, and I do not find it easy to balance my time between giving students time to engage in inquiry and the need to cover all the prescribed content. Also, lecture-style teaching is "more orderly" and helps maintain a linear plan. However, I firmly believe it is the power of inquiry-based instruction. The benefits to students outweigh the added challenges on the instructor side. To continuously grow, I attend IBL-conferences every year.

Inclusive teaching and cooperative learning

Mathematics is often seen as extremely difficult to learn, even that they are not "naturally predisposed" to succeed. As an instructor, I work to fight this fear, and increase students' tolerance for engaging in mathematical tasks that are intellectually demanding, where struggle is inevitable (and expected) and progress is rewarded. My experience with teaching math circles for disadvantaged pre-college students taught me the importance of being open to challenges and seeking help from others. I am also open to challenges students to think deeper about mathematics. I encourage students to ask questions and explore the underlying concepts.

Mentorship

In addition to teaching students in my own courses, I have also been a mentor for students in my role as a teaching assistant. I have had the opportunity to work with a number of students who have expressed an interest in pursuing a career in mathematics. These students have been particularly interested in pursuing further training in the field of mathematics, and I have been able to provide them with guidance and support in their academic and professional development.
Examples of formatting

John Peco-Medlin

Teaching Statement

Integral Calculus course, after writing the product rule and the chain rule, I purposely do not just list the Quotient Rule as another thing they should have memorized from earlier. I point out similarities with these previous rules, and then show how they can be used to derive the Quotient Rule. Later in the same course, after reviewing the Fundamental Theorems of Calculus, I have the students determine what happens if they apply this to an integral with the integrand matching exactly the output of the product rule or chain rule. A week later they then see a sub-integration and substitution by parts. I show how mathematical reasoning rather than rote memorization can enable a student to make new conclusions in a controlled learning environment. One student said:

The TI was most helpful in supporting the most crucial concepts we would need to understand in order to do well on quizzes/courses. He was also helpful in explaining the background behind the concept which gave me a better understanding of why we did certain things.

Another student added:

Super engaging during discussions. I always leave the meeting knowing that I learned/gained something, which other classes haven’t really afforded me in the past.

2 Teaching Practices Inside the Classroom

Inside the classroom I incorporate different best-practice strategies for teaching, including:

- **Differentiation:** I recognize that students with diverse educational backgrounds need different approaches for effective learning. In my directed reading course on Random Matrix Theory, the students have significantly different backgrounds and needs as learners (one is taking graduate courses with limited probability background, and the other has a strong stats foundation with no measure theory exposure). One way I address these differences is I created a Shareable Document that provides scaffolding for the students that need it in order to access or better engage with the graduate-level text we are reading. Within this, I created problem sets with exercises of varying levels of difficulty and user-element choice for differentiation.

- **Visible learning targets:** At the beginning of each class, I would write learning targets, and this would remain visible for the entirety of the class. This ensured students are aware of exactly what should be expected of them and how they can assess their own understanding of the material. As well, I include an agenda for the week. In particular, if a quiz is included, I will include explicit topics that will be emphasized on it. This is highly appreciated by the students. One student wrote:

  He can easily breakdown a complicated concept. His examples are very specific: the type of test we may encounter in the final. The help us understand the format as well as what kind of concepts we need to focus on. He is funny too so our stress gets reduced as well.

Another added:

engaging and interactive on the course material; know how to break it down and teach it in a way that is understandable and easy to learn; spends time answering questions, and explains exactly what is going to be on the quiz and tests

- **Digital strategies for virtual learning:** I use different technologies to heighten the student’s engagement with the material. For example, Kahoot quizzes can serve as a fun interactive learning platform, useful for short review or even longer overview sessions. In a seminar on Women in Math, I used Kahoot quizzes as a basis for a directed conversation on the accomplishments of 11 historical and modern women mathematicians, which I co-led with the President of the UCI Association of Women in Mathematics student chapter. I also have experience using Gather Town to organize larger virtual social events, which can also be designed to cater an interactive learning environment in the classroom.

During the COVID-19 pandemic, all instruction was moved online at UCI. I became proficient at instruction through Zoom, including integration with other learning technologies, such as Canvas, and use Microsoft Whiteboard and OneNote on a secondary screen for notation during instruction, which I share with students after class. In addition, I made use of different collaborative learning technologies to further engage student thought, such as Overleaf and Blackboard.

- **Mathematical programming:** Coding is another essential feature in further engaging student thought. In my reading group, I have the students collaboratively build a shared Overleaf document using Jupyter and add solutions to selected problems. Furthermore, I have the students run simulations in MATLAB to try out theorems from their reading. This helps build an intuitive foundation to support a theorem, and allows the student a means to test variations in taste to further explore the mathematical structure behind these results. The students share their working code with each other and embed generated figures into the shared Overleaf document.

- **Cooperative learning strategies:** In addition to having the students form study groups and use specific collaborative digital tools, I have used other strategies, including think-pair-share, small group review sessions, and occasional group questioning.

- **Proportional grading or “failure of the zero”**: This courses that each potential grade category on an assignment is equally weighted. Due to course constraints for which grading is points based, I implement this on assignments I grade for equally starting students at 90% on an assignment (earning a student makes an effort), and distributes the remaining points by mastery of learning objectives. Students have always been appreciative of my grading philosophy:

Very fair grades and quizzes were not too challenging or too easy and sometimes there would be a for fun questions that didn’t affect our grade. I especially like his grading policy which is that he didn’t believe in giving Fs. I agree with his reasoning.

- **Facilitating educator collaboration:** As part of my role as a COMP [Community, Outreach, and Mentoring Program] Fellow, I am in charge of the Peer Mentoring program for the math department as well as oversee a learning seminar for incoming grad students. To organize a learning experience for my peers, I have established a Professional Learning Community (PCL) in which, in a PLC model, we meet weekly to create goals and progress. We have regularly scheduled meetings throughout a quarter, where they collaboratively build and gather resources, implement them, meet back up to compare results, adapt approaches, and repeat.

3 Mentoring Philosophy

As a COMP Fellow, I work with the departmental Peer Mentor program, which matches every incoming grad student with a volunteer upperclassman. Additionally, I will continue to serve as a mentor in the UCI Chamin and Latin Staff Association (CLSA) Undergraduate Mentor Program, which targets support for incoming first generation undergraduate students.

My mentoring philosophy has grown out of my experience as a mentor here at UCI and in my previous work with the Social and Economic Sciences Research Center, along with knowledge gained through focused data analytics projects, through professional teaching training, and through completion of the Mentoring Excellence Certification Program with the UCI Graduate Division.

I believe the main goal of a mentoring program is in an academic environment is to promote the self-efficacy and retention of incoming students. The mentor should be one of the first reliable support systems for the mentee. No matter how prepared an incoming student is, the transition to the next phase in the learning cycle always comes with unknowns. A mentor can primarily help this transition by serving as a reliable and, most importantly, accessible support for the mentee, enabling a student to succeed academically, socially, and psychologically. The support system should vary based on the specific mentees (and mentor). Initial meetings should establish general boundaries for growing the mentor/mentee relationship, but these boundaries should be fluid. It is important for a mentor to be able to be flexible to the needs of the mentee, but the mentor should constitute a safe space for the mentee, one that promotes open and honest communication and allows constructive criticism if necessary. My job in being the COMP Fellow includes ensuring resources for the enrichment of the students experience (presented by myself and others) and to facilitate the development of their mentoring skills through group learning.
If you have thought deeply about how your teaching changes based on the particular setting, you may consider introducing sections to highlight that distinction.

For example:

- Teaching in person/Teaching online
- Experience as a Teaching Assistant/Experience as an Instructor of Record
- Graduate teaching/Undergraduate teaching
- Small classes/Large classes
III. Mentoring Experience

Mentoring is part of teaching, and deserves a place in your teaching statement.

It could take many forms. For example:

❖ Mentoring first-year graduate students (peer mentoring program)

❖ Teaching a reading course for undergraduates or supervising an undergraduate reading project (directed reading program)

❖ Mentoring novice students in your advisor’s research group

❖ Being a research assistant in a summer undergraduate research experience - even informally (e.g. Math BioU/Math ExpLR)

❖ Mentoring youth (Math Circle or Math CEO)

❖ Talk to undergraduates about graduate school (in office hours or more formally in panels)

❖ Participate/lead AWM activities
In addition to traditional classroom teaching, I have created and been involved in numerous mentoring activities. As part of the creation of a department-wide Directed Reading Program, I taught a 2-unit research course on the Mathematical Modeling of Infectious Disease Dynamics to two undergraduate students in Spring 2020. This course consisted of weekly meetings and assignments to introduce students to the field of mathematical epidemiology, which took place concurrently with the first wave of COVID-19 spread in the United States. As part of the course, the students performed original research and built a mathematical model of an infectious disease moving through a population, and then presented their work in both paper and talk form. In Fall 2020, I taught a similar research course on the mathematical modeling of cancer initiation and dynamics.

Furthermore, in summer 2020 I was a teaching/research assistant for the UCI MathBioU program, where undergraduate and advanced high school students work in small research teams on a project in the field of mathematical biology and learn the basics of mathematical modeling (similar to a Research Experience for Undergraduates). In collaboration with Professor Natalia Komarova, I helped lead a group of two undergraduate students and one high school student to use network models to model a COVID-19 outbreak within the UCI math department during the upcoming academic year. These experiences have reinforced that by demonstrating to students how math can have real-world relevance, and by showing students how to approach difficult problems, math and math research become fun and fruitful endeavors.
IV. Reflections and growth

❖ Your growth as a teacher
  ❖ How your teaching has evolved over time
  ❖ What did you change in response to issues in teaching evaluations
  ❖ Specific lesson learned

❖ Challenges
  ❖ Past challenges (& what you did to overcome them)
  ❖ Persisting challenges (potential areas of growth)

❖ Flexibility
  ❖ How you adapted your teaching in response to particular circumstances (e.g., online)

❖ Inclusive excellence in the classroom
  ❖ What do you do to meet the students where they are at?
  ❖ Class-wise strategies that support first-generation students or other special populations

❖ Professional development related to teaching or mentoring
  ❖ DTEI certificates, workshops, etc.

❖ Future directions
  ❖ Ideas for undergraduate research projects or topic courses
  ❖ TIP: study the institution you are applying to (What is their student body? What are their teaching needs? What is the class size? Remember: certain strategies only work in small classes)
Your growth as a teacher

❖ How your teaching has evolved over time
❖ What did you change in response to issues in teaching evaluations
❖ Specific lesson learned

Example

Inquisitive math circles
Math circles bring mathematicians into direct contact with K-12 students to help them explore mathematics in an engaging, open-ended format. Participants work in groups to explore, create and communicate mathematics through problem solving and interactive exploration. Deep technical content is combined with a sense of discovery and excitement to promote problem-solving skills and enjoyment for mathematics. While certain features – like a strong enthusiasm for teaching, a caring attitude towards students, and the intent to support the educational experience of the students as a whole – have been defining features of my teaching since the very start, my biggest growth as a professor at UCI has been motivated by an effort to bring “the math circle experience” into the college classroom. I want my undergraduate students to experience the excitement in exploring and discovering mathematics in a collaborative environment, so they can come to appreciate (not just “learn”) the math content and they can develop a mathematical mindset (of inquiry and critical thinking) which will serve them well in their future pursuits.
Challenges

❖ Past challenges (& what you did to overcome them)
❖ Persisting challenges (potential areas of growth)

Example

Continuous growth
Of course, *active learning instruction poses its own challenges*. Pacing the class is harder, for example, than in a traditional lecture, and I am working to find a better balance between my desire to give students ample time to engage in inquiry and the need to cover all the prescribed content. Also, lecture-style teaching is “more orderly” and meets less initial resistance from students. Giving *every* student a voice may also be a challenge in a class that is centered around questioning, because some students are more eager to contribute than others. Balancing the contribution from most vocal students without curbing their enthusiasm for the material may be just as difficult as encouraging shy students to participate. Nonetheless, I firmly believe in the power of inquiry-based instruction. The benefits to students outweigh the added challenges on the instructor side. To continuously grow, I attend IBL-conferences every year.
Flexibility
❖ How you adapted your teaching in response to particular circumstances (e.g., online)

Example

As I prepared to be a virtual instructor, I realized my biggest challenge would be to convince the students, who would never interact with me in person, that I am accessible, responsive and inviting. In order to tackle these issues before the course even began, I posted a welcome video on the class’s Canvas course space and hosted a “meet-and-greet” office hour for students to come by and introduce themselves. My efforts to make myself accessible were successful; from the office hour I learned that many of my students were essential workers, and they appreciated that the pre-recorded lectures gave them maximum flexibility for designing their work schedules.

Every scheduled lecture day, I emailed the students with announcements and always included a reminder that they could reach out to me if they had any questions. As calculus students often have difficulty conveying math over email, to remain accessible to them, I encouraged them to send pictures of their work. I often responded with either a response written in Latex or a PDF file produced from my iPad. My communication with the class was well received. One student wrote on my course evaluation, “I love the daily reminders of what was posted and what is due. I appreciate all the communication.”
Inclusive excellence in the classroom

❖ What do you do to meet the students where they are at?
❖ Class-wise strategies that support first-generation students or other special populations

Example

Inclusive teaching and cooperative learning
Many students perceive mathematics as an extremely difficult subject to learn, one that they are not “naturally predisposed” to succeed at. As an instructor, I want to fight this fear, and increase students’ tolerance for engaging in mathematical tasks that are intellectually demanding, where struggle is inevitable (and expected) and progress is rewarding. My experience teaching math circles for disadvantaged pre-college students taught me that before I can challenge students to think deeper about mathematics, I must create a safe, caring and nurturing learning environment. Therefore, I spend time in my classes building positive relationships with and among students. At the start of the course, I ask my students to write a brief mathematical autobiography to reflect upon previous experiences with math, how they learn best or what might help them excel in this course. In the classroom, I strive to cultivate an environment where all students feel welcome, valued, and supported. I am also very intentional about creating opportunities for students to meet and collaborate with one another, both inside the classroom (through group math activities) and outside (by replacing traditional office hours with study sessions).
Professional development related to teaching or mentoring

❖ DTEI certificates, workshops, etc.

Example

In addition to Improv for Teaching, multiple other pedagogically-based trainings have also influenced my teaching philosophy and attitude. Throughout the Mentoring Excellence as well as Ethics in the Modern World Certificate Programs, I have learned the importance of adapting teaching strategies and policies to the needs of students, which can be very different across heterogeneous situations and environments. One clear example of this, is that pedagogical research demonstrates that first-generation college students are less likely utilize helpful academic resources like instructor and teaching assistant office hours, even though these office hours can be one of the best ways to get individual help on challenging concepts, interact directly with faculty, and perhaps even learn about undergraduate research opportunities. At UCI, almost half of the undergraduate population identifies as first-generation students, which makes it absolutely essential to encourage first-generation students to attend office hours and feel comfortable asking questions.
Future directions

❖ Ideas for undergraduate research projects, topic courses, teaching related seminar
❖ TIP: study the institution you are applying to (What is their student body? What are their teaching needs? What is the class size? Remember: certain strategies only work in small classes)

Example

Reflections and future plans

As I continue to grow as an instructor, I would like to find ways to work with other instructors who are also developing their teaching styles and philosophies. To this end, I have three goals. First, I want to develop an online open-source archive of lesson plans and activities. I envision a resource by instructors and for instructors, where we can access a wide variety material to use in our classrooms or to inspire new student-specific activities. Second, I would like to develop workshops to explore effective ways to utilize active learning to benefit specific groups of students. Third, I want to develop (or participate in) a regular teaching seminar where instructors can share their recent positive and negative teaching experiences. This seminar would give new and experiences instructors a place to discuss what works in a specific classroom and why, as well how a lecture or activity could be improved for future use. Most importantly, a teaching seminar will help developing instructors cultivate their personal teaching philosophies.
Future directions

❖ Ideas for undergraduate research projects, topic courses, teaching related seminar
❖ TIP: study the institution you are applying to (What is their student body? What are their teaching needs? What is the class size? Remember: certain strategies only work in small classes)

Example

Additionally, I have firsthand experience of the value of a liberal arts education. Each experience has taught me more about teaching and interacting with students, and I am always looking forward to learning new things with each new class and each new teacher I meet. I understand many different classroom environments and the techniques to adapt to each in order to better serve my students. It is my constant hope that each student leaves my classroom with a better picture of the beautiful knit creation that is mathematics. Who knows, maybe one of my students will one day add a stitch.
Drafting your TS early... Why?

❖ Think of whether, as of now, you have something unique to say about your teaching
❖ Need ideas? Talk to fellow graduate students or faculty
❖ You may even visit other people teaching
❖ Start collecting evidence of teaching effectiveness
❖ Take steps to demonstrate your intent to grow as a teacher (DTEI certificates)
❖ Don’t be afraid to experiment in your classes and try something new, but reflect right after and ponder whether changes are needed
❖ Document your thinking about teaching (not just the activities themselves)

The optimal teaching statement is a “reflective” one, that shows your philosophy in action and describes your growth as a teacher.
Resources

https://dtei.uci.edu/resources/

Facilitating Student Success

**Considering Student Completion of the Writing Requirement** - Steps to help students be successful with academic writing.

**Engaging First Generation Students** - Four steps for supporting first-generation students.

**Increasing Success for Low-Income Students** - Four steps for supporting low-income students.

**Teaching International Students** - Some small changes to teaching methods that greatly increase opportunities for international students to succeed.
Certificate Programs Overview

Why enroll in a certificate program?
The GPSRC offers a wide range of certificate programs to help you enhance your knowledge and skills beyond your degree. Certificate programs are free and open to graduate students and postdoctoral scholars.

When are certificate programs offered?
Certificate programs are offered throughout the academic year. Currently, all certificate programs are offered online via Zoom.

<table>
<thead>
<tr>
<th>Certificate Program</th>
<th>Fall 2020</th>
<th>Winter 2021</th>
<th>Spring 2021</th>
<th>Summer 2021</th>
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<td>Excellence in Engineering Communications by Activate to Captivate</td>
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<td>New! Management Beyond the Classroom</td>
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<td>Mentoring Excellence</td>
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<td>Preparing for Faculty Careers</td>
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