

Welcome and health statement

Students: Welcome to BIMM 101! This has been a challenging year for many reasons, including the ongoing COVID-19 pandemic. **As your professor, I value your health, wellbeing, and learning.** Navigating this quarter, the rest of college, and beyond successfully will require hard work and a prioritization of your mental and physical health. This quarter I will challenge you in this course to deepen your understanding and to grow as students. However, this is not at the expense of your wellbeing. We are an in-person course, and we will follow UCSD's guidelines for everyone's health and safety! Beyond physical health, I will encourage you throughout the quarter to make time for yourselves to recharge, relax, and rejuvenate yourselves with productive or healthy ways to find joy. Taking time to do so will help you with your studying – we learn best when we are in better states of mind! Additionally, you will see in my grading policies that I drop at least one of each type of assignment, with the goal of your having bandwidth for days when you need them. Finally, while I imagine this quarter may have unique challenges, I will consistently encourage you to celebrate the victories you will have (both large and small!) and to enjoy these moments of college together.

Course Information

Course Description: Welcome! In BIMM101 we aim to develop an understanding of research in molecular biology through inquiry-based sessions. We will work in groups to design, collect, analyze, and critique data while learning molecular and biological concepts and critical thinking skills. These skills are fundamental for scientists, and will be useful to you in your career at UCSD and beyond!

Prerequisites: BILD 1 **Course credits:** 4

Instructional Team

Instructor: Dr. Claire Meaders (she/her) (cmeaders@ucsd.edu)

Student hours are a time when you can come ask clarifying questions about the course material, chat about research, or about any other topics!

- Fridays 11:00-12:00 PM (one-on-one 15 min appointments, sign-ups via calendly <https://calendly.com/cmeaders/15min>)
These spaces are to ensure that time is available for one-on-on conversations and Q&A.

- Mondays 4:00 PM – 5:00 PM (no appointment needed! zoom links on canvas)

Instructional assistants (student hours TBD):

- A01: Hobie Gementera (hjgement@ucsd.edu); A02: Bindhu Shree Hosuru (bhosuru@ucsd.edu)

Course structure

Lectures: Tu/Th 9:30-10:50 AM, SEQUO 148

- I use **active learning** in order to better support your learning. This means we will have interactive lectures with clicker-type questions so that we can immediately identify topic areas that need more explanation, and topic areas that you are comfortable with. All in-class activities and questions can be completed remotely, but we encourage you to attend the class sessions in-person if you can – they are designed to help you practice applying content, but also are an opportunity to get to know the instructional team and your classmates!

Labs: Tu/Th 11:30 AM – 2:50 PM A01: York 2310; A02 York 2332

- **Most** labs will be in-person. *consult course schedule linked below to see zoom and in-person dates
- **Note:** the schedule of classes says that we will start at 11:00, but we are starting at 11:30 to give everyone time to walk from the lecture hall to the labs!

Course schedule

The full course schedule (subject to change) is available at:

<https://docs.google.com/spreadsheets/d/1q4xtXsPb7D3tDpEKPO7nIPRWQWRvHyZR/edit?usp=sharing&ouid=110889656801617046153&rtpof=true&sd=true>



My role is to help you in this course, and I encourage you to stop by student hours! Please stop by so that we can chat - with hybrid instruction this is a great opportunity to get individual "face to face" time - especially if you have any confusion about a concept from lecture or lab. If you prefer email, I'll try my best to reply within 24 hours - but please write to me from your USCD email account or through canvas. Thanks!

Course materials:

- Lab Manual – purchase at the UCSD Bookstore
- Tablet or laptop to use in lab if you have one. We use the computer in every lab to enter notes in our digital lab notebooks. We do have some loaner laptops that you can use during lab time if you do not have access to one to bring.
- Knee-length laboratory coat (available at bookstore)
- UV-blocking safety glasses or goggles (available at bookstore) *we also recommend looking for anti-fog glasses to wear while masked, such as Ztek anti-fog, supplier item: 191300953
- Fine-tipped sharpie pen (dark color) for labelling tubes in the lab
- Masks required in lab and class at all times: KN95 respirator mask for lab (or, double up on non-KN95 mask).
- All labs: Long pants and closed-toe/heel shoes are required in lab

Course overview

| | |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Class | <ul style="list-style-type: none"> • <i>Before:</i> <ol style="list-style-type: none"> 1. Review Lab Tasks posted on Canvas 2. Read background + protocols for that day (this is the “before” lab work, but I ask for it due before class so that you will have some context for class!) • Review important concepts, skills, lab protocols |
| Lab | <ul style="list-style-type: none"> • <i>Before:</i> Complete “before lab” work in lab notebook (see Lab Tasks posted on Canvas) • During lab: engage with peers, IAs and Instructor to complete tasks such as data analysis, discussions, experimental design, lab protocols, troubleshooting • By end of day: Have a completed lab notebook entry for the lab that day (as outlined in Lab Tasks) |
| Other | <ul style="list-style-type: none"> • Weekly Recap Quizzes on Canvas, due Sunday 11:59 PM most weeks – reviews basic concepts and protocols covered the previous week • Tests, writing assignments: practice applying knowledge and skills • Peer review: practice giving and receiving feedback |

Please see general lab policies here: <https://biology.ucsd.edu/education/undergrad/covid-19.html#Biology-Lab-Policies-and-Fees>

Learning Goals: By the end of this course, you will be able to:

- Apply knowledge of molecular biology concepts & molecular techniques to plan experiments, explain & troubleshoot results
- Explain the importance of proper controls in designing experiments & interpreting results
- Perform basic lab math skills, statistical analysis, and graphing
- Draw conclusions based on evidence & reasoning
- Use basic bioinformatics databases & applications
- Find, read, and evaluate primary literature
- Critically evaluate scientific writing (your own, & that of peers)
- Collaborate with each other to learn biological concepts & laboratory skills

Learning in this course

This course is designed to be an environment for everyone to learn and construct a shared understanding of the material. **Active participation** by engaging with the lecture material, asking and answering questions and contributing to breakout sessions during lab time is expected. Being able to communicate understanding, and confusion, is critical to success in any discipline, and is very useful for learning¹. To encourage collaboration, lab discussions will be done in groups, and grades will not be assigned on a curve. Being proactive to ask questions during student hours and in class will be critical for success, especially given the hybrid nature of the course. Instead of memorization, we will focus on developing an understanding of fundamental concepts as they apply to different examples. Therefore, quizzes will include questions that are based on solving problems in new contexts.

Course Expectations

| What I expect of you | What you can expect of me |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Be informed. Read this syllabus carefully and completely so you understand the course structure and expectations. | Enthusiasm. To be prepared for each class and to bring my enthusiasm for teaching to each lecture, lab, and office hour meeting. |
| Be attuned. Keep up with the lecture videos and lab assignments, as each one builds on the previous one. | Responsiveness. To respond to emails within 24 hours. For those that know me already, you know that I usually respond faster than this. Emails received on weekends may take longer. |
| Ethical. A good attitude and maintenance of honest and ethical principles towards me, your classmates, and the execution of the course. Please read UC San Diego's Principles of Community and Conduct Code . | Timely feedback. To make every effort to return graded assignments within one week of the submission date and to post solutions or code as soon as is reasonably possible after the submission date. |
| Integrity. An honest, fair, responsible, respectful, trustworthy, and courageous effort on all academic work and collaboration. Please read UC San Diego's Policy on Integrity of Scholarship . Then, take the integrity pledge ! | Integrity. To uphold integrity standards and create an atmosphere that fosters active learning, creativity, critical thinking, and honest collaboration. |
| Be flexible. Sometimes my schedule gets affected by unavoidable events, necessitating some office hour rescheduling at the last minute. | Reasonable accommodation and understanding for student situations that arise; however, I will not make exceptions for one person that are not available to every other person in the course. |

Grading Information

BIMM101 has multiple grading components:

| Assignment | Weight |
|--------------------------------------------|-------------|
| Lab participation | 5% |
| Weekly recap quizzes | 10% |
| Lab notebooks | 20% |
| Molecular biology review | 2% |
| Exams | 33% |
| CRISPR write-up | 28% |
| Professionalism | 2% |
| Total | 100% |
| Extra credit (e.g. surveys, student hours) | 1% |

The following grading scheme will be used. The course is **not** graded on a curve (i.e. 20% of students getting A, B, C, and such). Thus, the ability to do well in this course is not dependent on others doing poorly.

| | | |
|--------------|------------|-------------|
| A+ = 100-97% | A = 97-94% | A- = 94-90% |
| B+ = 90-87% | B = 87-84% | B- = 84-80% |
| C+ = 80-77% | C = 77-74% | C- = 74-70% |
| D = 70-60% | F = < 60% | |

Lab participation

Lab will be facilitated by instructional assistants and instructor. During lab we will work collaboratively to analyze data, design experiments, and engage in troubleshooting of results. Participation in at least 85% of any of the lab sessions will result in full points. **It is highly recommended that you participate in as many as possible because this is an opportunity to ask questions and get feedback.** *If circumstances beyond your control interfere with your ability to participate in any labs in-person once we have returned to in-person instruction, please get in touch with us ASAP, and you can receive participation credit by completing a make-up assignment (see canvas 'course information module' for directions) by the end of the lab day (11:59 PM) (in addition to making sure your notebook is fully up-to-date for your notebook grade).*

Weekly recap quizzes

The quizzes posted on Canvas are meant as a basic review of concepts covered in class and lab the week prior. Note these are often easier than what will find on the tests and final exam. Most weeks a Recap Quiz is due Sunday at 11:59pm. These quizzes are also a good chance for you to notice if you are confused on certain topics or protocols. **Please follow-up on things you are confused about! Ask questions in class or lab, come to office hours!** There are nine Recap Quizzes planned. The two lowest scores are dropped. This means it is ok to miss a question here and there, or up to two quizzes. ***If you find yourself unable to complete a quiz or two because of illness or family emergency there are no extensions – those missed quizzes will count as the low scores and be dropped.***

Lab notebooks

Each student will be assigned an individual digital lab/research notebook (Google Doc) that you will use for the quarter. These will be made available through the Canvas Site and via email to you directly. Complete and organized lab notebook entries are a critical part of effective work in a research lab. As such, we expect students to practice good lab notebook entry habits. Please consult the lab notebook guidelines (Canvas), which includes a link to an example notebook. **Lab notebook entries will be regularly and randomly checked for both before-lab work and in-lab work.** In total, 10 entries will be checked and scored. The two lowest scores will be dropped. The remaining scores will be averaged and the average used to determine the points out of 20 (e.g., if your average is 85%, you will receive 17 out of 20 course points). ***If you find yourself unable to complete up to two lab notebook entries because of illness or family emergency there are no extensions – those missed entries will count as the two low scores to be dropped.***

Molecular biology assignment

An assignment with questions to review some background molecular biology and experimental design concepts will be due during Week 1. This assignment will be scored 1 point for on-time completion, and 1 point for correctness. Instructions to submit the assignment will be posted on Canvas.

Exams

There are three exams scheduled, each is cumulative. All exams will be held online and are open notes. The lowest exam score will be dropped. The remaining exams will be weighted such that the highest-scoring test is worth 20/33 course points, and the second test score is 13/33 course points. ***If you miss a test because of illness, quarantine, or family emergency there are no make-up exams – that missed exam counts as your lowest score.***

CRISPR Write-Up

The goal of the write-up is to write a short scientific article to present results of the CRISPR experiment, including an introduction, methods summary, presenting and summarizing results, as well as constructing scientific arguments (what you can conclude, evidence to support, and providing reasoning biological/molecular/experimental explanations or hypotheses). A draft will be submitted for peer-review, and then a final version. Consult course schedule for due dates, and guidelines/rubrics will be provided on Canvas.

Professionalism

This portion of the course grade is intended to motivate students to consider the impact of their actions on their own learning and the learning of others in the course. Professional interactions have meaningful benefits to you, your fellow students, and/or the teaching team. Analogously (similar to) in the workplace, being professional to your colleagues or supervisors will only benefit you! For example, you may be invited for new opportunities that you may or may not have been aware of. Professionalism can be demonstrated through individually demonstrating maturity and professionalism, as well as contributing meaningfully to our course community (1 point described here). **By default, every student is assumed to be professionally mature. Hence, this component is awarded to every student at the beginning of the quarter.** During the quarter, based on observations by the teaching team, which includes but is not limited to one-on-one interactions, electronic communication etc. your professionalism credit may be deducted.

Example interactions with meaningful benefits:

- Developing deeper insight into course material, concepts, biology, and/or society in general
- Working collaboratively to improve in skill building and future opportunities
- Contributing to an inclusive learning environment
- Learning conceptually and meaningfully why full credit was not awarded for an assignment
- Clarifying course material that facilitates deeper learning
- Reporting errors or problems in class, on assignments, or for other course material
- Arriving on-time to lab video sessions and being prepared to work in lab

Example interactions that have no meaningful benefits and thus should be avoided:

- Contributing inequitably to team work
- Harassing and/or bullying the instructional team or other students, either in person or online
- Ignoring the directions or requests from the instructional team

Extra credit

The 1% extra credit can be earned by attending one 15-minute individual student hour session; completing course evaluations and/or completing related surveys which aim to improve the course and the educational experiences of your future peers. There are no other opportunities for extra credit beyond what is assigned by the course instructor.

Late assignments and quizzes

Assignments must be submitted on time to be eligible for full credit. Except in the case of medical or family emergencies, late assignments will be subjected to a 10% deduction per day.

All students may receive two late passes for assignments (with the exception of exams). In order to receive a late pass, please fill out the ungraded canvas survey under the “Getting Started” module to request an extension.

Regrades

If a grading error has been made, you should submit a re-grade request via email to your Instructional Assistant or Dr. Meaders. Students who submit items for re-grading understand that we may re-grade the entire item and the score may go up or down

Academic Integrity <https://students.ucsd.edu/academics/academic-integrity/index.html>

Integrity of scholarship is essential for an academic community. The University expects that both students and faculty will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual(s) to whom it is assigned, without unauthorized aid of any kind. In this course, we need to establish a set of shared values. Following are values* adopted from the [International Center for Academic Integrity](#), which serves as the foundation for academic integrity.

| | As students we will... | As the teaching team we will... |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Honesty | <ul style="list-style-type: none"> Honestly demonstrate your knowledge and abilities according to expectations listed in the syllabus or in relation to specific assignments and exams Communicate openly without using deception, including citing appropriate sources | <ul style="list-style-type: none"> Give you honest feedback on your demonstration of knowledge and abilities on assignments and exams Communicate openly and honestly about the expectations and standards of the course through the syllabus and in relation to assignments and exams |
| Responsibility | <ul style="list-style-type: none"> Complete assignments on time and in full preparation for class Show up to class on time and be mentally and physically present Participate fully and contribute to team learning and activities | <ul style="list-style-type: none"> Give you timely feedback on your assignments and exams Show up to class on time and be mentally and physically present Create relevant assessments and class activities |
| Respect | <ul style="list-style-type: none"> Speak openly with one another while respecting diverse viewpoints and perspectives Provide sufficient space for others to voice their ideas | <ul style="list-style-type: none"> Respect your perspectives even while we challenge you to think more deeply and critically Help facilitate respectful exchange of ideas |
| Fairness | <ul style="list-style-type: none"> Contribute fully and equally to collaborative work, so that we are not freeloading off of others on our teams Not seek unfair advantage over fellow students in the course | <ul style="list-style-type: none"> Create fair assignments and exams and grade them in a fair and timely manner Treat all students and collaborative teams equally |
| Trustworthiness | <ul style="list-style-type: none"> Not engage in personal affairs while on class time Be open and transparent about what we are doing in class Not distribute course materials to others in an unauthorized fashion | <ul style="list-style-type: none"> Be available to all students when we say we will be Follow through on our promises Not modify the expectations or standards without communicating with everyone in the course |
| Courage | <ul style="list-style-type: none"> Say or do something when we see actions that undermine any of the above values Accept the consequences of upholding and protecting the above values | <ul style="list-style-type: none"> Say or do something when we see actions that undermine any of the above values Accept the consequences of upholding and protecting the above values |

* This class statement of values is adapted with permission from Tricia Bertram Gallant Ph.D.

All course materials are the property of the instructor, the course, and the University of California, San Diego and **may not** be posted online, submitted to private or public repositories, or distributed to unauthorized people outside of the course. Any suspected instances of a breach of academic integrity will be reported to the Academic Integrity Office for review and possibly given a score of 0.

Student Resources for Support and Learning

Academic support

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|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Geisel Library | Research tools and eReserves |
| Content Tutoring with the Teaching + Learning Commons | Drop-in and online tutoring through the Academic Achievement Hub |
| Supplemental Instruction with the Teaching + Learning Commons | Peer-assisted study sessions through the Academic Achievement Hub to improve success in historically challenging courses |
| Writing Hub Services in the Teaching + Learning Commons | Improve writing skills and connect with a peer writing mentor |
| Learning Strategies Tutoring | Address learning challenges with a metacognitive approach |
| OASIS | Intellectual and personal development support |
| Student Success Coaching Program | Peer mentor program that provides incoming and continuing first-generation students with information, resources, and support in meeting their goals |
| Academic Integrity | Policy on Academic Integrity of Scholarship and strategies to excel with integrity |
| Technical Support | Assistance with accounts, network, and technical issues |

Student resources

| | |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Basic Needs | Provides access to food (including the Triton food pantry), housing, and financial resources |
| Counseling and Psychological Services (CAPS) | Provides services like confidential counseling and consultations for psychiatric services and mental health programming |
| Community Centers | As part of the Office of Equity, Diversity, and Inclusion the campus community centers provide programs and resources for students and contribute toward the evolution of a socially just campus |
| Counseling and Psychological Services | Individual, group, couples, and family psychotherapy services for registered undergraduate and graduate students |
| Office for Students with Disabilities | Documents students' disabilities, provides accessibility resources, and reasonable accommodations |
| Triton Concern Line | Report students of concern at (858) 246-1111 |

It is also helpful to find support and resources for your specific needs. Some of the resources here at UCSD include: APIMEDA programs and services (apimeda.ucsd.edu), the Black Resource Center (brc.ucsd.edu), the Cross-Cultural Center (ccc.ucsd.edu), the LGBT Resource Center (lgbt.ucsd.edu), the Raza Resource Centro(raza.ucsd.edu), the Student-Parents Resource page (students.ucsd.edu/well-being/wellness-resources/student-parents), the Student Veterans Resource Center (students.ucsd.edu/sponsor/veterans), the Undocumented Student Services Center (uss.ucsd.edu), the Women's Center (women.ucsd.edu), and the Triton Transfer Hub (transferstudents.ucsd.edu/transfer-hub/index.html)

Accessibility

<http://disabilities.ucsd.edu> | osd@ucsd.edu | 858-534-4382

Any student with a disability is welcome to contact me early in the quarter to work out accommodations to support their success in this course. Students requesting accommodations for this course due to a disability should work through the Office for Students with Disabilities (OSD). Instructors will receive Authorization for Accommodations Letters from the OSD online portal. Students are required to discuss accommodation arrangements with instructors and OSD liaisons in the department in advance of any exams or assignments. Whenever possible, we will use universal designs that are inclusive. If you have feedback on how to make the class more accessible, please get in touch!

Inclusion

<https://diversity.ucsd.edu/> | diversity@ucsd.edu | 858.822.3542

<https://students.ucsd.edu/student-life/diversity/index.html>

<https://regents.universityofcalifornia.edu/governance/policies/4400.html>

It is our goal to create a learning environment that supports diversity of thought, perspective, experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.). To help accomplish this:

- If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me during office hours or by appointment. I want to be a resource for you.
- You can also submit anonymous feedback at <https://forms.gle/1Ub1KxELNaNPtLc8> (which will lead to me making a general announcement to the class, if necessary to address your concerns). If you prefer to speak with someone outside of the course, the Office of Equity, Diversity and Inclusion (diversity@ucsd.edu) is an excellent resource.

I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that made you feel uncomfortable, please talk to me about it. (Again, anonymous feedback is always an option.)

We encourage all of you to participate in discussion and contribute from your perspectives. As a participant in course discussions and as part of a lab team, you should also strive to honor the diversity of your classmates. If you have feedback on how to make the class more inclusive, please get in touch!

Nondiscrimination and harassment

The University of California, in accordance with applicable federal and state laws and university policies, does not discriminate on the basis of race, color, national origin, religion, sex, gender, gender identity, gender expression, pregnancy (including pregnancy, childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition, genetic information, ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (including membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services). The university also prohibits harassment based on these protected categories, including sexual harassment, as well as sexual assault, domestic violence, dating violence, and stalking. The nondiscrimination policy covers admission, access, and treatment in university programs and activities.

If students have questions about student-related nondiscrimination policies or concerns about possible discrimination or harassment, they should contact the Office for the Prevention of Harassment & Discrimination (OPHD) at (858) 534-8298, <https://ophd.ucsd.edu/>, or <http://ophd.ucsd.edu/report-bias/index.html>

Campus policies provide for a prompt and effective response to student complaints. This response may include alternative resolution procedures or formal investigation. Students will be informed about complaint resolution options. A student who chooses not to report may still contact CARE at the Sexual Assault Resource Center for more information, emotional support, individual and group counseling, and/or assistance with obtaining a medical exam. For off-campus support services, a student may contact the Center for Community Solutions. Other confidential resources on campus include Counseling and Psychological Services, Office of the Ombuds, and Student Health Services.

CARE at the Sexual Assault Resource Center: 858.534.5793 | sarc@ucsd.edu | <https://care.ucsd.edu>
Counseling and Psychological Services (CAPS): 858.534.3755 | <https://caps.ucsd.edu>

Letters of recommendation

If you think you may want me to write you a letter of recommendation (or any other instructor), please consider what a good letter would contain and how your actions in the course demonstrate the qualities you will want highlighted in a good letter. When students ask me for a letter of recommendation, I ask them to write to me about how they demonstrated critical thinking, leadership, collaboration, and professionalism. I will be specifically looking for examples of these qualities that I could have noticed during lab and office hours. Be sure to actively participate in the discussions, talk to me during the lab and my office hours: ask questions, offer your own ideas and interpretations of your results, bring interesting facts/papers that are connected to the material we are studying. If you don't actively show the qualities that are needed to write a good letter, it will be hard for me to write a letter that is meaningful and useful.

If you would like to request a letter, please fill out the letter request survey at this link:
<https://forms.gle/A8qQ1rBNpGR5345H7>

Subject to change policy

The information contained in the course syllabus, other than the grade and absence policies, may be – under certain circumstances (e.g. to enhance student learning) – subject to change with reasonable advance notice, as deemed appropriate by the instructor.

Technical support

For help with accounts, network, and technical issues: <https://acms.ucsd.edu/contact/index.html>
For help connecting to electronic library resources such as eReserves and e-journals:
<https://library.ucsd.edu/computing-and-technology/connect-from-off-campus/>

University of California, San Diego
Consent to Act as a Research Subject

Investigating the Impact of Pedagogical Choices on University Student Learning and
Engagement

Who is conducting the study, why you have been asked to participate, how you were selected, and what is the approximate number of participants in the study?

Gabriele Wienhausen, Director of the Teaching and Learning Commons, together with her education research colleagues is conducting a research study to find out more about how pedagogical choices affect student learning and experience in the classroom. You have been asked to participate in this study because you are a student in a class that is being studied or used as a control. There will be approximately 500,000 participants in this study.

Why is this study being done?

The purpose of this study is to create knowledge that has the potential to improve the learning and educational experience of students at UC San Diego and beyond.

What will happen to you in this study and which procedures are standard of care and which are experimental?

If you agree to be in this study, the following will happen:

- Your data from this class including grades, homework and exam submissions, and survey responses will be included in the analysis to determine the effectiveness of the pedagogical techniques used in this course compared to other similar courses.

How much time will each study procedure take, what is your total time commitment, and how long will the study last?

Your participation involves only agreeing to let us use your data in our analysis. It will require no time on your part above the time you put into this course without agreeing to the study.

What risks are associated with this study?

Participation in this study may involve some added risks or discomforts. These include the following:

1. A potential for the loss of confidentiality. We will not share your personally identifying data with people outside our research team. Data will only be kept in anonymized form for research purposes. Course data will not be used for this research study until after final grades have been posted and will be rendered confidential by removing any identifiers before analysis. Your instructor will not know whether or not you are participating in this study until after final grades have been posted. Data from students who opt out of the study will be removed prior to data analysis. Research records will be kept confidential to the extent allowed by law. Research records may be reviewed by the UCSD Institutional Review Board. Since this is an investigational study, there may be some unknown risks that are currently unforeseeable. You will be informed of any significant new findings.

What are the alternatives to participating in this study?

The alternatives to participation in this study are not to participate. If you choose to opt-out of participating in this research study, we will exclude your data from analysis. Whether you participate will have no impact on your experience or grade in the associated class as the professor will not know who is or is not participating in the study until after final grades are assigned.

What benefits can be reasonably expected?

There is no direct benefit to you for participating in the study. The investigator, however, may learn more about how to improve student learning, and society may benefit from this knowledge.

Can you choose to not participate or withdraw from the study without penalty or loss of benefits?

Participation in research is entirely voluntary. You may refuse to participate or withdraw or refuse to answer specific questions in an interview or on a questionnaire at any time without penalty or loss of benefits to which you are entitled. If you decide that you no longer wish to continue in this study before the end of the quarter, simply respond to the online opt-out form here: <https://goo.gl/forms/JSBRjEmkES6W6xYc2>. If you decide to opt out after the quarter has ended, you must contact Laurel Nelson (laureln@ucsd.edu) and give the quarter and the course from which you would like your data withdrawn.

You will be told if any important new information is found during the course of this study that may affect your wanting to continue.

Can you be withdrawn from the study without your consent?

The PI may remove you from the study without your consent if the PI feels it is in your best interest or the best interest of the study. You may also be withdrawn from the study if you do not follow the instructions given you by the study personnel.

Will you be compensated for participating in this study?

You will not be compensated for participating in this study.

Are there any costs associated with participating in this study?

There will be no cost to you for participating in this study.

Who can you call if you have questions?

Gabriele Wienhausen and/or her colleague has explained this study to you and answered your questions. If you have other questions or research-related problems, you may reach Gabriele Wienhausen at gwienhausen@ucsd.edu or (858) 534-3958.

You may call the Human Research Protections Program Office at 858-246-HRPP (858-246-4777) to inquire about your rights as a research subject or to report research-related problems.

Your Consent

If you consent to participate in this study, no action is needed. If you DO NOT consent to

participate in this study, or you choose to opt-out at any time during the quarter, please submit this form online at https://docs.google.com/forms/d/e/1FAIpQLScs0Cznypp4SxQJOsFMgP9nFDjJ0zzYPlSBWsiP3_wiWkdjaA/viewform. Your instructor will not have access to the list of students who opted out until after grades are posted. Note that you must separately opt-out of the study for each course involved in this study.

[] I am not 18 years or older or I do not consent to anonymized research use of my data from the course specified below.

Course name: _____

Course section number: _____

Term: _____

Name: _____

PID: _____