Instructor:

Dr. Lisa McDonnell (she/her) <u>Imcdonnell@ucsd.edu</u>

I will only send and receive correspondence via my UCSD email address or the course Canvas site.

Office Hours: Wed & Fri, 10am-10:50am and Thursdays 3:30-4:30pm (PST). Zoom links on Canvas. It can be scary asking questions! I have the utmost respect for people who can muster the courage to ask questions, any question. Please feel welcome to come to office hours to talk about course material or other topics.

Class sessions: Tuesday class is live 3:30pm-4:50pm (PST) via Zoom (links on Canvas), but will also be recorded in case you can't make it. Thursday classes are video lectures (no live session) **except** the <u>first class on Oct 1, it will be live (and recorded)</u>

**Please note that there are tests to be completed during Tuesday class time Weeks 3, 6 and 9.

Discussion sections: Mondays 5-5:50pm and Fridays 2-2:50pm (both PST). Zoom links on Canvas. These sessions are not recorded. You may attend either section, does not have to be the one for which you registered (unless too many students use one section, then we will have to enforce registration-only attendance).

Final Exam: Monday Dec 14, 3:00pm-5:59pm (PST). Remote exam. Details will be posted on Canvas.

Instructional assistants:

Jessica Xu (jzx005@ucsd.edu) and Dilan Patel (dsp021@ucsd.edu)

Materials:

- Be able to connect to class/discussion sessions by Zoom (or recorded lectures)
- <u>No</u> textbook required (book at bookstore is *optional*): I will provide readings that are sourced from free, online material. If you are comfortable with online resources, you can use the ones I recommend throughout the quarter (and/or others you find). If you want a textbook then Klug (Essentials of Genetics) is recommended, and you can find the relevant topics using the index/table of contents. You may also use older editions of the Klug textbook.

Course website: https://canvas.ucsd.edu/

Course Schedule: Link here. Updates posted on Canvas.

Welcome to BICD 100: Genetics! This course aims to develop concepts of genetics as they apply to how information is stored, utilized, and inherited in life. Fundamental concepts include gene and chromosome structure, phenotype, chromosome segregation and recombination, gene expression, random mutation, and natural selection. We will learn these concepts by studying their roles in biological systems and will apply our understanding of these concepts to explain and predict a wide range of biological and real-life phenomena including human health, biodiversity, and agriculture.

LEARNING GOALS

- Collaborate with fellow students and the teaching team to learn concepts in genetics
- Apply knowledge of genetics concepts to analyze & explain data, make predictions, solve problems, and construct scientific arguments based on evidence and reasoning

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. 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

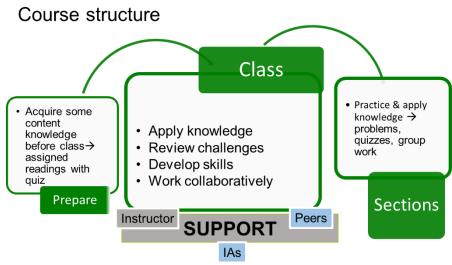
It is our goal to create a learning environment that supports diversity of thought, perspective, experience, and identities. We encourage all of you to participate in discussion and contribute to the field from your perspective. If you have feedback on how to make the class more inclusive, please get in touch! Office of Equity, Diversity, and Inclusion:

858.822.3542 | <u>diversity@ucsd.edu</u> | <u>https://diversity.ucsd.edu/</u> <u>https://students.ucsd.edu/student-life/diversity/index.html</u> https://regents.universityofcalifornia.edu/governance/policies/4400.html

LEARNING IN THIS COURSE

This course is designed to be a collaborative environment for everyone to learn together and construct a shared understanding of the material. Active participation both in class and in discussion section is encouraged. Being able to communicate understanding, and confusion, is critical to success in any discipline, and is very useful for learning¹. То encourage collaboration, class activities and discussions will often be done in groups, and grades will not be assigned on a curve.

We will use class time to work on applying our knowledge, troubleshooting difficult topics, and practice solving problems. There are often pre-class assignments to prepare for the material to come in class.



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 (analysis, applying knowledge, generating ideas, justifying with reasoning).

1 Smith et al., 2009. http://www.sciencemag.org/content/323/5910/122.short

<u>GRADING</u>

BICD 100 has multiple grading components:

Lecture Quizzes	6
Homework	5
Discussion section participation*	5
Genetics Data analysis and writing	
assignments (week 2 and 8)**	18
Tests (weeks 3, 6, 9)	22
Final exam**	35
Professionalism	1
Bonus (e.g. surveys)	1

*If you participate in 80% of discussion sections, score out of 5 will be counted. If you are unable to participate in at least 80%, the 5 points will be added to the final exam weight.

**Writing or exam will be weighted to 26 (writing) or 41 (exam), depending on what best benefits each individual.

The following grading scheme will be used. The course is <u>not</u> 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+	96-100
Α	92-95
A-	88-91
B+	84-87
В	80-83
B-	76-79
C+	72-75
С	67-71
C-	62-66
D	50-61
F	0-49

Lecture quizzes: Most weeks there will be an assigned reading and associated quiz, posted on Canvas, to be completed prior to the start of Tuesday class (except test weeks, in those weeks the quiz will be due prior to Thursday class). Reading will be assigned from online sources and primary literature. Check the weekly modules on Canvas for recommended reading and quizzes. The purpose is to 1) introduce some relevant background material, so you are prepared for class and can have productive discussions; 2) introduce some relevant primary literature; 3) your quiz responses help me know what material students are struggling with. A score of 85% overall on the quizzes for the quarter will result in being awarded full points. There are no late quiz submissions accepted.

Homework: Near the end of each week a problem set will be posted on Canvas. This is meant to provide practice applying knowledge of what we are learning. The point of the homework is to give it your best try. Homework will be scored on a three-point scale: 0 (not done or minimal effort), 1 (effort, but incomplete or multiple large errors), 2 (complete and thinking is on the right track). The lowest homework score will be dropped. You will be asked to type your answers into a document and upload them to Canvas (details provided in Canvas). Homework will typically be due on Mondays prior to 5pm.

Discussion section participation: Sections will begin during Week 1 (Monday Oct 5). Weekly discussion sections are designed to engage in collaborative problem solving, practice data analysis, and forming scientific arguments – all important for our tests, writing assignments, and final exam. During section, a portion of time will be used to discuss any challenging problems from the previous homework, and the remaining time will be used to work on a new problem (new problem distributed during section). You may attend either section if you cannot attend the section in which you are enrolled. If you participate in at least 80% of sections, 5 points will be awarded. If you are unable to participate in at least 80%, those 5 points will be moved to the weight of the final exam. Note that participation will only be scored for meaningful engagement with peers and the IAs to work collaborative only problems (simply having a Zoom connection during section time is not sufficient to be awarded points).

<u>A note about the role of the IA in discussion sections</u>: the benefit of section is time for *talking* and sharing ideas with peers and the IA. The IA is not going to re-lecture material or simply give answers, rather they will use the time to facilitate discussions and collaborative problem solving.

Writing Assignments: There will be two writing assignments focused on interpreting and drawing conclusions from research from primary literature articles. The writing assignments will ask you to summarize your analysis and understanding in the form of a scientific argument (claim, evidence, explanation) – we will review this structure in class. There will be three parts to each assignment: 1) first draft, 2) peer-review, 3) final version. The highest scoring writing assignment will be worth 12, and the lowest worth 6. A complete first draft and complete, thoughtful peer-review will both be worth points (rubrics on Canvas).

The writing assignments will complement activities in class and in discussion section. They provide an opportunity to apply genetics knowledge to make sense of research results. The skills developed in these writing assignments will also be tested on tests and the final exam, where you will be challenged to analyze data and construct scientific arguments that answer specific research questions.

The Writing and Critical Expression Hub at the Teaching + Learning Commons located in Geisel Library (http://commons.ucsd.edu/students/writing/index.html) provides support for undergraduates working on course papers, e.g. writing assignments in this course, as well as other independent writing projects. Writing mentors can help at any stage of the writing process, from brainstorming to final polishing. The Writing and Critical Expression Hub offers: one-on-one writing tutoring by appointment; supportive and indepth conversations about writing, the writing process, and writing skills; help with every stage in the writing process, walk-in tutoring; and workshops on writing.

Tests: We will have three tests this quarter. Tests will take place on Tuesday Oct 27, Thurs Nov 10, and Thursday Dec 1. All are administered from 3:30-5:00pm (PST). You do not need to Zoom into class to take the test, but you need to be available during that scheduled time to download, complete, an upload your test. I will be in the Zoom class session in case you have questions (you can type them into the private chat). The lowest, intermediate, and highest scoring tests will be weighted to 6, 7, and 9 points, respectively. There will also be a practice test released during Week 2 that you can complete for some feedback on

earlier course material. Completion of all questions, and a score of at least 50% will be awarded a bonus 1% on your lowest scoring test (e.g. if your lowest scoring test was a 60%, it would be bumped to a 61%).

Final Exam: The final exam will be similar to the tests in that you will have a scheduled time interval to download, complete, and upload your exam response. The final exam is scheduled for Monday Dec 14 from 3:00-5:59pm (PST).

Both the tests and final exam in this course will focus on application of knowledge to assess and solve novel problems (**not** memorization of facts), and forming scientific arguments. They are considered open note tests. Answers must be in your own words from your own understanding (that is, it is not OK to communicate with others about test answers or seek help from any sources).

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. Unprofessional interactions consume time yet have no meaningful benefits to you, your fellow students, and/or the teaching team. Analogously in the workplace, being unprofessional to your colleagues or supervisors will only discount you. When you are discounted, you will not be invited for new opportunities that you may or may not be aware of.

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, and follow-up conversations on grades, your professionalism credit may be deducted in steps of 0.5%.

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
- · 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

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

- Contributing inequitably to team work in class or in discussion section
- Harassing and/or bullying the instructional team or other students, either in person or online
- Asking questions about information that is already available (I do not mean conceptual questions to help you learn, I mean things like "when is the homework due?"
- Ignoring the directions or requests from the instructional team
- · Being disruptive to fellow students in class or discussion section

Extra Credit: The 1 point extra credit can be earned by completing course evaluations and 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.

STUDY TIPS

Assessments in this course are focused on applying understanding of genetics concepts to solve problems and propose reasonable explanations. You will also be asked to analyze data to draw conclusions. You will not be tested on your ability to memorize facts. So, to prepare for quizzes and the

final exam it is best to practice applying knowledge, solving novel problems, and analyzing data to draw conclusions.

Suggestions on reviewing class materials:

- Check the learning objectives included in lecture slides are there any you feel you can't do
 proficiently
- Re-do in-class questions, but cover-up the answer and explain the reasons for your choice in writing. Read your answer out-loud, does it make sense? Better yet, read your answer to a peer – do they have questions for you based on your response?

Suggestions for using practice problems:

- Sit down with practice problems, without your notes, and time yourself. Pretend they are a test do not consult notes, do not check the answers when you feel stuck. Try your best, and only after you have completed them should you check the answers. Then, for questions where your answer deviates from the answers. Ask:
 - o Is my answer completely incorrect? Where did I go wrong?
 - Is my answer partially correct? What was I missing, and why?
 - Ask for help come to office hours! Work with your peers!

LATE ASSIGNMENTS AND MISSED QUIZZES

Assignments must be submitted on time to be eligible for full credit. Except in the case of documented medical or family emergencies, late assignments will be subjected to a 25% deduction per day if submitted within 48 hours after the posted due date. Assignments not submitted within 48 hours of the due date will receive a score of 0. There are no make-up quizzes offered, except in the case of a documented medical or family emergency (in which case the instructor will decided how to go about the make-up testing, which may include making the final exam worth more).

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 <u>International Center for Academic Integrity</u>, which serve as the foundation for academic integrity.

	As students we will	As the teaching team we will
Honesty	 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 	 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	 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 	 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

UNIVERSITY OF CALIFORNIA SAN DIEGO

Respect	 Speak openly with one another while respecting diverse viewpoints and perspectives Provide sufficient space for others to voice their ideas 	 Respect your perspectives even while we challenge you to think more deeply and critically Help facilitate respectful exchange of ideas
Fairness	 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 	 Create fair assignments and exams and grade them in a fair and timely manner Treat all students and collaborative teams equally
Trustworthiness	 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 	 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	 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 	 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.

REGRADES

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

Student Resources for Support and Learning

ACADEMIC SUPPORT

<u>Geisel Library</u>	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 +	Improve writing skills and connect with a

Learning Commons	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 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, housing, and financial resources
Counseling and Psychological Services (CAPS)	Provides services like confidential counseling and consultations for psychiatric services and mental health programming
<u>Community Centers</u>	As part of the <u>Office of Equity, Diversity</u> , <u>and Inclusion</u> 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

DISCRIMINATION 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, <u>https://ophd.ucsd.edu/</u>, or <u>http://ophd.ucsd.edu/report-bias/index.html</u>

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 | <u>sarc@ucsd.edu</u> | <u>https://care.ucsd.edu</u> Counseling and Psychological Services (CAPS): 858.534.3755 | <u>https://caps.ucsd.edu</u>

CHILDREN AND VIDEO SESSIONS

You are welcome to have children with you during video sessions as I fully understand that childcare situations may be complicated for many of us at this time. Do your best to participate and engage, but also please get in touch with me if you have any questions or concerns.

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.

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

Consent to Participate in Educational Research

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 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:

<u>https://goo.gl/forms/JSBRjEmkES6W6xYc2</u>. If you decide to opt out after the quarter has ended, you must contact Ying Xiong (yix184@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 and are at least 18 years old, 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 <u>https://goo.gl/forms/JSBRjEmkES6W6xYc2</u>. 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.

UNIVERSITY OF CALIFORNIA SAN DIEGO

BICD 100 FALL 2020