

# BICD 100 SPRING 2020

UNIVERSITY OF CALIFORNIA  
SAN DIEGO

## **INSTRUCTOR:**

Dr. Keefe Reuther (he/him/his)

Email address: [kdreuther@ucsd.edu](mailto:kdreuther@ucsd.edu) (please put BICD 100 in the subject line)

**All educational sessions except office hours will be recorded and made available asynchronously.**

## **LECTURE TIME:**

MWF 3:00-3:50pm

## **MIDTERM AND FINAL TIMES:**

Midterm1	05/02/2021	Sun	7:00p-8:20p
Midterm 2	05/25/2021	Tu	7:00p-8:20p
Final	06/09/2021	W	3:00p-5:59p

## **INSTRUCTIONAL ASSISTANTS AND MEETING TIMES:**

Name	Email Address
Michelle	<a href="mailto:mpbui@ucsd.edu">mpbui@ucsd.edu</a>
Ola	<a href="mailto:omostafa@ucsd.edu">omostafa@ucsd.edu</a>
Luis	<a href="mailto:l3estrad@ucsd.edu">l3estrad@ucsd.edu</a>
Anna	<a href="mailto:amcquarr@ucsd.edu">amcquarr@ucsd.edu</a>

## **SECTION MEETING TIMES ON ZOOM:**

A01	Tu	9:00a-9:50a	Ola
A02	Tu	10:00a-10:50a	Michelle
A03	Th	11:00a-11:50a	Luis
A04	Th	2:00p-2:50p	Michelle
A05	Th	6:00p-6:50p	Anna

## **OFFICE HOURS**

**All IA office hours will be posted in the Zoom LTI Pro link on the Course Canvas page**

Reuther's Office Hours:

Monday: 2-3pm

Wednesday 4-5pm

Thursday 4-5pm

Any schedule changes will be posted on the course website. Make sure to frequently check the website to keep updated.

**Typical Weekly Responsibilities – CHECK THE COURSE CANVAS HOME TAB! This table is NOT comprehensive**

WHAT?	WHERE?	WHEN?
Going to lecture	Zoom (live) Weekly Modules (if you watch it later)	Shown live MWF 3:00-3:50pm for active participation. Can watch asynchronously
Problem Sets	Gradescope app on Canvas	Due by Sunday @11:59pm; weekly
Section Meetings/Assignment	Zoom LTI Pro app on Canvas	Your scheduled section time unless you have a conflict
Topic Discussion	Discussions tab on Canvas	By Wed and Sun 11:59pm weeks 2,4,7,8,10

Week	Weekly Lecture Topics
1	Introduction; DNA structure and Central Dogma
2	Mutations; Biotech
3	<b>MIDTERM #1 - Mini-midterm (Monday)</b> Genomics; Genetic engineering
4	Gene Regulation; Cancer
5	<b>MIDTERM #2 - (Sunday)</b> Mendelian Genetics
6	Pedigrees and Probability; Modification of Mendelian Ratios
7	Sex determination; sex-linked inheritance
8	Chromosome Aberrations; Mapping genes in eukaryotes
9	<b>MIDTERM #3 - Tuesday</b> Quantitative traits and measuring heritability
10	Population genetics and evolutionary genetics; the future of genetics

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## Welcome to BICD 100: Genetics!

**PREREQUISITES:** BILD 1 is a required prerequisite for this course. You may find it beneficial to review relevant BILD 1 material.

**COURSE OBJECTIVES:** An introduction to the principles of heredity emphasizing diploid organisms. Topics include Mendelian inheritance and deviations from classical Mendelian ratios, pedigree analysis, gene interactions, gene mutation, linkage and gene mapping, reverse genetics, population genetics, and quantitative genetics.

**CONTACT:** The best way to contact me is by email: [kdreuther@ucsd.edu](mailto:kdreuther@ucsd.edu). On all emails PLEASE put BICD 100 in the subject line to indicate that the email pertains to this course. If you email about anything regarding your status in the course, please include your UCSD username, and PID. If you have questions about course content, it is often faster to email your IA directly.

**TEXTBOOK:** Our textbook is **Essentials of Genetics** by Klug, Cummings, Spencer, and Palladino. It is **OPTIONAL**.

### ACCESSIBILITY

<http://disabilities.ucsd.edu> | [osd@ucsd.edu](mailto:osd@ucsd.edu) | 858-534-4382

Any student with a disability is welcome to contact me early in the quarter to work out reasonable accommodations to support their success in this course. Students requesting accommodations for this course due to a disability must 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 | [diversity@ucsd.edu](mailto:diversity@ucsd.edu) | <https://diversity.ucsd.edu/>

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

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

### 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 (e.g. on the discussion board), and contributing to breakout sessions during discussion time is expected.** Being able to communicate understanding, and confusion, is critical to success in any discipline, and is very useful for learning<sup>1</sup>. 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 office hours and on the discussion board will be critical for success, especially given the online 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.

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

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## SECTIONS AND SECTION MEETINGS:

Generally, you must join the Zoom meeting for the section you are registered for. In cases where that is not tenable due to a specific issue (e.g. time zone, childcare, etc.) then please contact me (Reuther) and we can arrange for you to Zoom in on another section.

The section meetings provide for academic review. Each week the IA will provide an opportunity to review the previous week's lectures and readings. This review may take the form of answering your specific and general questions, clarifying something important presented quickly in lectures, expanding on something important described in the textbook, or working through a numerical problem of the type found on the exams. This activity can be completed asynchronously and will be graded for credit - primarily on an effort basis.

## GRADING:

Mini - Midterm 1	10 points
Midterm 2 (cumulative)	30 points
Midterm 3 (cumulative)	30 points
Final Exam (cumulative)	60 points
Problem Sets (10 points each; lowest score dropped)	70 points
Week 1 Practice Activities	5 points
Topic Discussions (Weeks 2, 4, 7, 8, 10; 5 points each; lowest score dropped)	20 points
Section Activities (5 points each and 2 lowest scores dropped)	35 points
<b>TOTAL</b>	<b>260 points</b>
<b>Extra Credit (CAPEs/Surveys)</b>	<b>5 points</b>

**Exams:** You will have 90 minutes for midterms (except for the first 50min mini-midterm 1) and 3 hours for the final exam. It will either be given as a Canvas quiz or a Gradescope download and upload; I will alert you as we get closer to the exam times. **It is very important to follow-up in office hours or via discussion boards on concepts you were unclear on. It is your responsibility to make every effort to be available for the scheduled midterm 2 and 3. Alternative times will only be for approved reasons that are outside the control of the student.**

**Problem Sets:** Problem sets will be posted on Gradescope by ThFriday afternoon and will be due uploaded to Gradescope by Sunday @11:59pm. The first will be due at the end of week 2 and every week thereafter. Your lowest score will be dropped. During week 1, I will post a practice problem set worth 3 points to get you used to using the tech. *If circumstances beyond your control interfere with your ability to participate, please get in touch with me so we can devise a plan for you to succeed in the course.*

**Topic Discussion:** During weeks 2, 4, 7, 8, and 10, there will be a discussion prompt placed in the Discussions section of Canvas prior to Monday morning. You must make one substantive response to the Any schedule changes will be posted on the course website. Make sure to frequently check the website to keep updated.

prompt before Wednesday @11:59pm. You must respond to another student's reply by Sunday night at 11:59pm. For a response to count for credit, it must be original, substantive, and properly cited (if necessary). Generally, this means a small paragraph. Replies of "I agree" do not count as substantive. Your lowest of the four scores will be dropped.

**Discussion section assignments:** Every week there will be a practice activity completed in section. If you do not attend your section synchronously, then it is your responsibility to complete the assignment on your own time. Everyone will be required to upload their response. Grading is primarily done on an effort basis. Your lowest 2 scores will be dropped.

**Professionalism:** All problem sets, assignments, and exams MUST be original and completed on your own, without the help of other students or from work posted illegally on websites specific to this course (i.e. contract cheating). Group work is only acceptable when explicitly noted. All problems sets/assignments/exam/etc. are otherwise open book/note/internet.

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. Professionalism can be demonstrated through individually demonstrating maturity and professionalism, as well as contributing meaningfully to our online. 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, following deadlines, and follow-up conversations on grades, your professionalism credit may be deducted.

Example interactions with meaningful benefits:

- Following the course and university rules of Academic Integrity
- 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
- Completing the work expected of you by posted deadlines
- Keeping up with reading information distributed by the instructor and IA's

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

- Harassing and/or bullying the instructional team or other students.
- Asking questions when the information is already available or will eventually be known
- Ignoring the directions or requests from the instructional team

**Extra Credit:** The 5 points 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.

### 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 20% deduction per day.

### REGRADES

Any schedule changes will be posted on the course website. Make sure to frequently check the website to keep updated.

If a grading error has been made, you should submit a re-grade request to Dr. Reuther. 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>

**Students are expected to do their own work, as outlined in the UCSD Policy on Academic Integrity. Academic misconduct is broadly defined as any prohibited and dishonest means to receive course credit, a higher grade, or avoid a lower grade. Academic misconduct misrepresents your knowledge and abilities, which undermines the instructor's ability to determine how well you're doing in the course. Please do not risk your future by cheating.**

**Students suspected of AI violations on exams will be invited to Zoom follow-up meetings where they will be asked to (in real time, on video) justify their answers (before the graded exams or solutions are released). If the instructor isn't convinced during the meeting, or the student refuses to participate, they're submitted for AI violations.**

**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 serve as the foundation for academic integrity.

	<b>As students we will.....</b>	<b>As the teaching team we will.....</b>
<b>Honesty</b>	<ul style="list-style-type: none"> <li>Honestly demonstrate your knowledge and abilities according to expectations listed in the syllabus or in relation to specific assignments and exams</li> <li>Communicate openly without using deception, including citing appropriate sources</li> </ul>	<ul style="list-style-type: none"> <li>Give you honest feedback on your demonstration of knowledge and abilities on assignments and exams</li> <li>Communicate openly and honestly about the expectations and standards of the course through the syllabus and in relation to assignments and exams</li> </ul>
<b>Responsibility</b>	<ul style="list-style-type: none"> <li>Complete assignments on time and in full preparation for class</li> <li>Show up to class on time and be mentally and physically present</li> <li>Participate fully and contribute to team learning and activities</li> </ul>	<ul style="list-style-type: none"> <li>Give you timely feedback on your assignments and exams</li> <li>Show up to class on time and be mentally and physically present</li> <li>Create relevant assessments and class activities</li> </ul>
<b>Respect</b>	<ul style="list-style-type: none"> <li>Speak openly with one another while respecting diverse viewpoints and perspectives</li> <li>Provide sufficient space for others to voice their ideas</li> </ul>	<ul style="list-style-type: none"> <li>Respect your perspectives even while we challenge you to think more deeply and critically</li> <li>Help facilitate respectful exchange of ideas</li> </ul>
<b>Fairness</b>	<ul style="list-style-type: none"> <li>Contribute fully and equally to collaborative work, so that we are not freeloading off of others on our teams</li> </ul>	<ul style="list-style-type: none"> <li>Create fair assignments and exams and grade them in a fair and timely manner</li> <li>Treat all students and collaborative teams equally</li> </ul>

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	<ul style="list-style-type: none"> <li>• Not seek unfair advantage over fellow students in the course</li> </ul>	
<b>Trustworthiness</b>	<ul style="list-style-type: none"> <li>• Not engage in personal affairs while on class time</li> <li>• Be open and transparent about what we are doing in class</li> <li>• Not distribute course materials to others in an unauthorized fashion</li> </ul>	<ul style="list-style-type: none"> <li>• Be available to all students when we say we will be</li> <li>• Follow through on our promises</li> <li>• Not modify the expectations or standards without communicating with everyone in the course</li> </ul>
<b>Courage</b>	<ul style="list-style-type: none"> <li>• Say or do something when we see actions that undermine any of the above values</li> <li>• Accept the consequences of upholding and protecting the above values</li> </ul>	<ul style="list-style-type: none"> <li>• Say or do something when we see actions that undermine any of the above values</li> <li>• Accept the consequences of upholding and protecting the above values</li> </ul>

\* 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

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

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## STUDENT RESOURCES

<a href="#">Basic Needs</a>	Provides access to food, housing, and financial resources
<a href="#">Counseling and Psychological Services (CAPS)</a>	Provides services like confidential counseling and consultations for psychiatric services and mental health programming
<a href="#">Community Centers</a>	As part of the <a href="#">Office of Equity, Diversity, and Inclusion</a> the campus community centers provide programs and resources for students and contribute toward the evolution of a socially just campus
<a href="#">Counseling and Psychological Services</a>	Individual, group, couples, and family psychotherapy services for registered undergraduate and graduate students
<a href="#">Office for Students with Disabilities</a>	Documents students disabilities, provides accessibility resources, and reasonable accommodations
<a href="#">Triton Concern Line</a>	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, <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.

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CARE at the Sexual Assault Resource Center: 858.534.5793 | [sarc@ucsd.edu](mailto: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.

### 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/>

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