

Health Data Science



PHOTO: SUSAN MERRELL

Student
Handbook
2023-24

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Department of Epidemiology and Biostatistics (DEB)

Location

UCSF Mission Bay Campus
Mission Hall: Global Health & Clinical Sciences Building
550 16th Street
San Francisco, CA 94158

DEB Education Offices: Second floor

Classrooms: The majority of classes take place in Mission Hall, but some may take place in other buildings on campus.

Health Data Science Program Contacts

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Faculty

An extensive network of faculty, researchers, data scientists work with the Department of Epidemiology and Biostatistics (DEB) to teach, advise, and mentor students in the Health Data Science programs. Many of the faculty and mentors are leaders in their field. They come from the DEB and other departments and institutes throughout UCSF.

Data Science Program Core Faculty

[John Kornak, PhD](#) – Program Director

[Isabel Elaine Allen, PhD](#) – Research Ambassador

[Jean Feng, MS, PhD](#)

[Stathis Gennatas, MBBS, PhD](#)

[Aaron Scheffler, PhD, MS](#)

[Gilmer Valdes, PhD](#)

Academic and Administrative Calendar 2023-24

The Certificate program and year one of the Master's program run for 11 months from July to June. Year two of the Master's program runs for 10 months from September to June. Please note that the program dates for summer and fall quarters differ slightly from the [UCSF academic calendar](#) published by the Office of the Registrar. The winter and spring quarters follow the UCSF academic calendar.

2023 Summer Quarter

Mon, July 17

Fri, Sept 6

Program Orientation and Instruction Begins

Instruction Ends

2023 Fall Quarter

Mon, Sept 11

Fri, Nov 10

Thur-Fri, Nov 23-24

Fri, Dec 8

Mon, Dec 11 – Fri, Dec 15

Instruction Begins

UCSF Holiday (Veteran's Day)

UCSF Holiday (Thanksgiving)

Instruction Ends

Final Exams

2024 Winter Quarter

Mon, Jan 8

Mon, Jan 15

Mon, Feb 19

Fri, Mar 15

Mon, Mar 18 – Fri, Mar 22

Week of Mar 25

Instruction Begins

UCSF Holiday (Martin Luther King, Jr. Day)

UCSF Holiday (President's Day)

Instruction Ends

Final Exams

Spring Break

2024 Spring Quarter

Mon, Apr 1

Mon, May 27

Fri, Jun 7

Mon, Jun 10 – Fri, Jun 14

Instruction Begins

UCSF Holiday (Memorial Day)

Instruction Ends

Final Exams

Getting Your Bearings

MyAccess

MyAccess is a single sign-on service used for UCSF online systems and services, including the [student portal](#), the [financial aid portal](#), the [Collaborative Learning Environment \(Moodle\)](#), [wireless internet access](#), and the [Virtual Private Network \(VPN\)](#). Log into MyAccess at <https://myaccess.ucsf.edu>.

Student Portal

The [student portal](#) provides access to important information, including fees, registration holds, grades, and course enrollments (study list filing).

Student ID

Student ID cards are required for daily access to campus buildings and all campus activities. The Office of the Registrar provides details about [how to obtain your ID card](#). Program staff will arrange to pick up your ID card on your behalf and provide it to you during Orientation.

In case of a lost or stolen ID card, please visit the [WeID website](#) for replacement instructions. Students are responsible for costs associated with replacing their ID card.

Requirements for UCSF IT Security

All students must abide by campus wide technology requirements at UCSF. Students should review the [Technology Introduction for Students](#) which provides an overview of technology at UCSF.

The [Technology Requirements for Students](#) outlines computer requirements, software requirements, two-factor authentication, setting up your UCSF email, etc. Program staff will coordinate with the IT Field Services Health Desk and Library Tech Commons to assist you with set up of your computer prior to the start of program.

If you would like help with the technology setup process or have other IT questions, please contact the [UCSF IT Service Desk](#). They are available 24 hours a day, 7 days a week by phone, email, and chat. The [UCSF Library Tech Commons Help Desk](#) is also staffed by UCSF IT Services and can provide one-on-one hands-on tech support for students.

Transcripts from Previous Institutions

All students must provide proof of successful completion of at least an undergraduate degree (equivalent to a bachelor's degree) in order to matriculate into the MS program.

Each student's admissions status is contingent upon receipt and evaluation of all official transcripts and bachelor's degree conferral. A degree conferral transcript is an official copy of your transcript that includes the following:

- Degree earned (BA, BS, MS, etc.)

- Subject in which the degree was earned (e.g., Biological Sciences, Art History)
- Date the degree was awarded
- Final grades for all terms attended

If the transcript does not include all of the information listed above, it is not considered a degree conferral transcript.

Transcripts from institutions outside the U.S. must be accompanied by a [Graduate Division approved evaluator](#), even if the transcripts are in English.

If your institution is not currently sending transcripts electronically or is not a U.S. institution, please email HealthDataSci@ucsf.edu to arrange delivery of your official transcript.

Student Success and Wellness

Success in graduate school requires care and attention to all aspects of student life: health and wellness, community, career development, personal and professional relationships, and security and safety. UCSF is committed to providing a full range of resources and services to help students succeed. Learn more about these resources by visiting the [Student Success website](#).

Student Disability Services (SDS) is available to assist students in obtaining the services and accommodations they require to ensure equal access to all aspects of the UCSF experience. Early communication with the relevant administrators is critical to successful partnership in arranging accommodations. SDS will coordinate communications and procedures with students and the graduate faculty and programs.

Students are encouraged to register with SDS as soon as they accept admission into the program and before they arrive on campus. Although students can start the registration process at any time, accommodations are not provided retroactively, so being timely in requesting accommodation is extremely important, especially at the beginning of the school year when SDS is particularly busy. Please note that students are not eligible to receive accommodations until the registration process is complete.

Students granted accommodations must discuss their accommodation needs directly with the instructors in the classes in which they wish to apply the accommodation. Students are advised to discuss their approved accommodation needs with their instructors prior to the start of the quarter, or within a reasonable amount of time in advance of a scheduled activity (exam, quiz, etc.). Ideally, students should make requests no less than two weeks before a scheduled activity. Please note that faculty are only able to make accommodations based on the letter provided by SDS at UCSF, and cannot accept letters from prior institutions.

Please visit the [SDS website](#) for more information including [how to register](#) and [documentation guidelines](#).

Diversity, Equity, and Inclusion

The Department of Epidemiology and Biostatistics (DEB) is committed to diversity in our workforce and among our professional collaborators and service providers; to equal and

supportive inclusion of people from all backgrounds, regardless of race or ethnicity, age, ability status, socioeconomic status, immigration status, sex, sexual orientation, gender identity, and cis- or transgender status; and to developing and actively maintaining equitable policies to advance these goals. In our roles as educators and researchers, we are also committed to working toward equitable professional opportunities, respectful and inclusive research practices, and health equity for all patients and populations.

The DEB [Committee on Diversity, Equity, Inclusion and Access \(DEIA\)](#)'s mission is to promote and advance inclusion and community among DEB members by eliminating barriers and forging pathways to allow all department members to fully engage in their professional work. We respect and appreciate the diverse characteristics of each department member and we strive to foster an environment that enables all members to feel empowered, valued, respected and safe.

Our principles align with those promoted by UCSF, as expressed by our [Office of Diversity and Outreach](#).

Registration and Course Enrollment

Registration

Students are required to [pay fees](#) and [file a study list](#) to be considered a registered student. The Office of the Registrar sends students an email notice when registration is open each quarter (approximately six weeks before the quarter begins). The Office of the Registrar provides detailed instructions about [how to register](#) with accompanying [registration deadlines](#).

Filing a Study List

Each quarter, students enroll in courses by [filing a study list](#) by the posted [deadlines](#) and completing the TICS course survey. Students will be assessed a late fee of \$50 if they do not accept their study list by the specified deadlines.

Students will be pre-enrolled in all required courses by the program. Students will need to verify that the courses are correct and accept them before the courses are added to their study list. Students may add additional elective courses to their study list. Elective courses must also be selected on the TICS course survey.

Please note, as a self-supporting program, the University does not allow Health Data Science students to take additional courses outside of DEB. Elective courses may be drawn from this list of [DEB classes](#).

Students will need to clear all [holds](#) in order to complete their study list filing. The student portal will provide hold details, including contact information for the office that placed the hold.

Students must select the letter grade option for all courses except for the Data Science Program Seminar courses (DATASCI 220 and 221), the Data Science Capstone Project

course (DATASCI 222), and Educational Practice (DATASCI 300), which are the only courses graded as satisfactory/ unsatisfactory (S/U).

Leave of Absence or Withdrawal

DEB follows the [registration policies](#) outlined by the Graduate Division about leaves of absence and withdrawal.

If students do not register, they must petition for either a leave of absence or a withdrawal. Otherwise, the Graduate Division will instruct the registrar to change the student status to “administrative withdrawal.”

A leave of absence may be granted for up to one academic year, and is subject to approval by the program director and the dean of the Graduate Division. After one year has passed, if students want to stay on leave, they must submit a request for an extended leave, which the program director must approve. Extensions are limited to no more than one additional academic year. No further extension can be granted and students must return to registered status or forfeit their place in the program.

Students may request a leave of absence at any time, but should have some idea of when they intend to return to graduate study. Approval of the petition for a leave of absence implies that the student will be readmitted to the graduate program. Students should petition for withdrawal if they have no intention of returning to UCSF.

Readmission

DEB follows the [registration policies](#) outlined by the Graduate Division about readmission.

A student on leave of absence must petition for readmission in order to register again as a student. The petition for readmission is available online from the [Office of the Registrar](#). Readmission requires the approval of the program director and the dean of the Graduate Division. The student must pay a non-refundable fee (as set by the Office of the Registrar) when filing the readmission form. Students must observe the registrar's deadlines for filing a petition for readmission.

Student Finances

Student Fees

The Office of the Registrar publishes the [student fees](#) for the Health Data Science programs (search “Health Data Science”). The Health Data Science master’s program fee is divided into seven quarters (year 1: Summer, Fall, Winter, Spring; and year 2: Fall, Winter, Spring). In cases where registration is needed for Summer between year 1 and year 2, the year 2 program fee will be divided equally across the year 2 quarters.

The Health Data Science certificate program fee is divided into four quarters (Summer, Fall, Winter, and Spring). Fees assessed do not reflect workload or course enrollment in that particular quarter.

Student Health Insurance Plan

Students in both the master’s and certificate programs are enrolled in the UC Student Health Insurance Plan (UC SHIP). Students may [apply for a waiver of UC SHIP](#), provided they can demonstrate that active, alternate coverage meets all the waiver criteria.

UC SHIP premiums are paid along with the quarterly tuition and fee payment.

Fee Payment

To complete registration each quarter, students are required to [pay their fees](#). Check the “Fees” tab in the student portal for balance and payment information.

Financial Aid

Students may apply for financial aid through the [UCSF Student Financial Aid Office](#). Aid is awarded based upon financial need and is usually in the form of loans or federal work-study. Students interested in a work-study position should indicate this in the financial aid application. The program will advertise paid positions as they become available; matriculated students may apply for these positions once the school year has started.

Courses and Grades

Course Listing

Coursework includes lectures, seminars, case studies, debates, and team-based projects. All courses are required. The Office of the Registrar's [Course Catalog](#) lists detailed information about each course.

Certificate and Master's Year One

Summer Quarter

Course	Teaching Faculty
Opportunities and challenges of complex biomedical data (BIOSTAT 202)	Aaron Scheffler, PhD, MS
Introduction to Programming for Health Data Science in R (BIOSTAT 213)	Stathis Gennatas, MBBS, PhD
Responsible Conduct of Research (EPIDEMIOLOG 201)	Sara Ackerman, PhD, MPH

Fall Quarter

Course	Teaching Faculty
Biostatistical Methods in Clinical Research I (BIOSTAT 200)	Ali Mirzazadeh, PhD, MD, MPH
Programming for Health Data Science in R II (BIOSTAT 214)	Stathis Gennatas, MBBS, PhD
Epidemiologic Methods (EPIDEMIOLOG 203)	Jeff Martin, MD, MPH
Data Science Program Seminar I (DATASCI 220)	John Kornak, PhD

Winter Quarter

Course	Teaching Faculty
Biostatistical Methods II (BIOSTAT 208)	Aaron Scheffler, PhD, MS
Machine Learning in R for the Biomedical Sciences (BIOSTAT 216)	Jean Feng, MS, PhD
Data Science Program Seminar I (DATASCI 220)	John Kornak, PhD

Spring Quarter

Course	Teaching Faculty
Biostatistical Methods III (BIOSTAT 209)	Chiung-Yu Huang, PhD

Advanced Machine Learning for the Biomedical Sciences II (DATASCI 225)	Gilmer Valdes, PhD
Data Science Program Seminar I (DATASCI 220)	John Kornak, PhD

Master's Year Two

Fall Quarter

Course	Teaching Faculty
Data Science Program Seminar II (DATASCI 221)	John Kornak, PhD
Data Science Capstone Project (DATASCI 222)	
Educational Practice (DATASCI 300)*	

Winter Quarter

Course	Teaching Faculty
Data Science Program Seminar II (DATASCI 221)	John Kornak, PhD
Data Science Capstone Project (DATASCI 222)	

Spring Quarter

Course	Teaching Faculty
Data Science Program Seminar II (DATASCI 221)	John Kornak, PhD
Data Science Capstone Project (DATASCI 222)	

* Educational Practice – may be any quarter through 2nd year.

Class Schedule

Students should refer to course syllabi at the beginning of each quarter for the final schedule. The department-wide course schedule lists all Health Data Science courses in addition to elective courses offered within the Training in Clinical Research program.

Course Material

Collaborative Learning Environment (CLE)

The [Collaborative Learning Environment](#), also known as the CLE, is an online system the program uses to manage course information and resources. Each course will have its own CLE link containing the course syllabus, materials, assignment information, and

announcements. Because changes may occur during the quarter, students should rely on the daily schedule posted on the CLE, and NOT on the original syllabus. If students detect discrepancies between the published syllabus and the CLE, they should use the latter as their guide. Students may find the [CLE Student Guide](#) useful to refer to, particularly the [Student Orientation to the Collaborative Learning Environment \(CLE\)](#).

Usage Policy

All Moodle courses and materials contained within are intended solely for the individuals who are permitted access to the curriculum by the Department of Epidemiology and Biostatistics, and may not be reproduced or disseminated. Sharing of accounts, course files, web links, or other materials with anyone other than an enrolled or authorized individual is a violation of the usage policy. Moodle materials may be protected by copyright, and any other use of these materials may be in violation of federal copyright law and University of California policies. Students may read more about the [ownership of course materials](#).

Course Evaluations

Students are **required** to complete course evaluations each quarter and at the end of the academic year. Evaluations are brief and distributed via Qualtrics surveys. Students are encouraged to provide constructive and professional feedback for each course, course director, and guest speaker. Students must complete course evaluations by the deadlines stated. The program director reviews course evaluations at the end of each quarter. Evaluations are very important for strengthening the program and are required for faculty who are applying for professional advancement in academic programs.

Students should always feel free to give feedback directly to the course director(s) or the program director, either informally or by appointment during office hours.

Grading Policy

The Health Data Science programs follow the [Graduate Division grading policy](#). Letter grades (without + or – addendums) are assigned for all courses except for the Data Science Program Seminar courses (DATASCI 220 and 221), the Data Science Capstone Project course (DATASCI 222), Educational Practice (DATASCI 300), and Responsible Conduct of Research (EPIEMIOLOG 201) which are the only courses graded as satisfactory/ unsatisfactory (S/U).

At the beginning of each quarter, the course director(s) will explain the criteria and rubric for grades. Grading cutoffs are determined by each course director and are not subject to debate or influence by the program director. The final decision of grades, including but not limited to, individual assignments, quizzes, exams, and overall course grades, are determined by the course faculty. Questions or comments regarding grades must be directed to the course faculty.

Students are encouraged to meet early with the course director if they are experiencing academic difficulty or do not understand the course requirements.

Letter grades are reported as follows:

A = excellent, B = good, C = fair, D = barely passing, F = failure, I = incomplete, S = satisfactory, U= unsatisfactory, IP = in progress

Please note: Final grades are not negotiable. Academic Senate policy permits grade corrections only for procedural or administrative errors.

Failing Grades

A course in which a student receives a grade of D or F cannot count toward a graduate degree, but is calculated as part of the grade point average. If a student repeats a course in which a D or F was reported, the original grade will remain on the student's record. Please note that classes are offered only once per year; therefore, repeating a course would likely require a student to extend the program.

Incomplete Grades

The grade of I is assigned when a student's work is of passing quality but incomplete for good cause, and is assigned at the discretion of the course director. An incomplete grade must be removed within one calendar year. If it is not removed, the grade of F will be assigned.

Transcripts and Grading Reports

Students may access transcripts and grade reports on the [student portal](#).

Credit for Courses Taken Prior to Enrollment

Students who have taken and successfully passed required courses prior to enrolling in either the Certificate or Master's Degree programs will not receive academic credit for these courses.

According to the policies of the UCSF Graduate Division, students who take courses before matriculating in a certificate or degree program will not be granted retrospective credit for these courses. However, students will not be required to take these courses again if they successfully passed them and the courses have not substantially changed in content since they took them. In general, students in this situation will not have to re-take any courses taken during Summer quarter or any courses taken in the past two years.

Any other courses taken more than 2 academic years ago will require a discussion with Program officials about whether they must be re-taken. Although students may not be required to take select courses again, students will need to make up these quarter units to meet degree requirements. For example, if a student completed and successfully passed EPI 203 (3 units), that student will need to make up the 3 units from this course by taking electives totaling 3 units during either one year in the certificate program (25.5 units required) or over the two years of the Master's Degree Program (36 units required).

This is not difficult to do as the department offers electives throughout the year. Students should alert the Program Manager of the courses they completed in the past that they do not

wish to repeat. The Program Manager will confirm that the student has successfully passed the course(s) and provide the program's consent that the student need not repeat these.

Course Waiver

Students may request to waive a required course if they believe they already mastered the course competencies in a graduate-level course completed elsewhere. To request a waiver for any required course, students should contact the program director no later than July orientation. Students will need to provide the course syllabus, completed assignments and/or exams where available, and proof of completion, via official transcript, to the program director for their evaluation. The evaluation will involve the course director of the required course. Additional written or oral evaluation may be required.

If the program director and course director determines the prior course meets program standards, the course waiver will be approved. Then, the student will be required to take an independent study or other course to complete the number of units required for their degree.

Student Expectations

Professional Conduct Statement

As a participant in the Health Data Science program, you are expected to maintain the highest ethical and professional standards. The UCSF School of Medicine Statement of Principles includes three statements that the Health Data Science Program expects of students:

1. I will maintain the highest standards of academic honesty.
2. I will neither give nor receive aid in examinations or assignments unless such cooperation is expressly permitted by the instructor.
3. I will conduct research in an unbiased manner, report results truthfully, and credit ideas developed, and work done by others.

Students are expected to adhere to the following statements relating to collaboration, which is allowed on homework assignments in the department:

4. I will not use answer keys from prior years.
5. I will write answers in my own works, and, when collaboration is permitted, acknowledge collaborators when answers are jointly formulated.
6. I will neither give nor receive aid (including the use of AI) in examinations or assignments unless such cooperation is expressly permitted

Unprofessional conduct may result in written or verbal warning, failure to achieve credit for an assignment or examination, or overall course failure. A departure from intellectual honesty may result dismissal from the program. The Policy on Student Progress, detailed on page 25 in this student handbook explains this in further detail.

Students are expected to maintain the highest ethical and professional standards in the classroom and throughout the capstone experience. The following section defines student expectations and professional conduct in the program.

Academic Honesty

See [Policy on Academic Misconduct](#).

Cheating

See [Policy on Academic Misconduct](#).

Code of Conduct

See [UCSF Campus Code of Conduct](#).

Communication

Students should use UCSF email for communications related to the program. UCSF's email system is encrypted and is a secure method for transmitting potentially confidential information. Contact Information Technology with any questions.

Students are expected to check their UCSF email at least daily during weekdays for important announcements, program or course changes, and items of interest. As a rule of thumb, faculty and staff are available by phone or email during standard business hours. Students should not expect a response on weekends or holidays.

Students, faculty, and staff alike are expected to respond to communication in a timely manner.

Deadlines

Assignment and program deadlines are fixed, in fairness to all students. Students who need to request an extension of any deadline must direct the request *prior to the submission deadline*, to the course director(s) and not the course assistants. Generally, individual assignment extensions are granted only for health or family emergencies, or based on prearranged accommodations by Student Disability Services (SDS).

The course director(s) will determine whether to grant the extension. They will also determine the grading impact of a late assignment or exam submission.

Normative Time from Matriculation to Degree

Students must complete the capstone project before the end of year 2 spring quarter. The graduate committee, program director, and program manager will monitor students' progress toward degree completion.

Degrees will be awarded to students only after they successfully complete the degree requirements, keep at least a 3.0 GPA, and have no failing or incomplete grades. The certificate degree typically is awarded 11 months after matriculation and the master's degree 2 years after matriculation.

Plagiarism and Original Work

Plagiarism is the use of another person's ideas, thoughts, theories, or phrasing without proper attribution or credit. In U.S. academia, the accepted view is that all knowledge is derivative, and sources of material from others must be properly cited so that the original work can be both credited and retrieved. Therefore, plagiarism includes both the direct replication of another work and claiming it is your own, as well as the borrowing of conceptual frameworks without attribution to the original source.

An occurrence of plagiarism in any coursework, whether as a single or multiple occurrence, will be treated equally according to Health Data Science policy guidelines. Course directors and the program director will make the final determination about whether plagiarism occurred.

Plagiarism is a serious form of academic dishonesty, and the penalties can be severe within an individual class, within the program, and within UCSF. For each class, the course director(s) will determine penalties and grading consequences when plagiarism has occurred, which will be described in the course syllabus. Additionally, all faculty will report the suspected plagiarism case(s) to the program directors. At the programmatic level, once a student is referred for plagiarism by course faculty, the program will follow procedures outlined in the [Policy on Academic Misconduct](#). The student will be required to complete an approved course/tutorial on avoiding plagiarism as a part of any remediation plan.

Preparation

Preparation for class requires judicious time management. Students should allocate time so that readings, written assignments, and exam preparation are completed before class. The UCSF Academic Senate expects that students allocate three hours of preparation for each contact hour of lecture, and two hours of preparation for each contact hour of seminar.

Although there is self-structured time during each quarter, students should note that extracurricular work exceeding 10 hours per week can interfere with academic progress and threaten timely completion of the program. The program makes every effort to distribute the workload, but students should try to anticipate when several assignments are due at once and plan accordingly.

Capstone Project (MS Only)

Students will begin developing a longitudinal capstone project as part of their requirements for the MiHDaS degree. Identification of the project will be encouraged in the first part of the program with the help of their Research Ambassador and Seminar Series organizer.

Graduate Committee

Each Master's student will have a **Graduate Committee** that will be formed over year 1, consisting of three faculty members:

1. Committee Chair
2. Biostatistician/data scientist, and
3. Clinical researcher.

The Committee Chair has the added responsibility of advising the student so as to be on track for completion.

The Committee will meet with and assess whether the scholar is making satisfactory progress toward meeting the program requirements at the end of year 2 (i.e., the presentation, first-authored submitted manuscript, and background report). No less than 6 months prior to anticipated completion of the last of their original research, the Committee will meet with the scholars to ensure the Committee is well aware of the exact projects the scholars have chosen to fulfill their requirements ("Pre-Graduation Review"). Finally, the Committee will participate in a "Final Graduation Review" where a final plan and timeline were agreed upon regarding the content and completion of the three research products. The purpose of this "Final Graduation Review" meeting will be to ensure that the Committee is well aware of and agrees with the final plans the scholar has made to fulfill the program's research product requirements.

Project Selection

The master's program devotes a considerable proportion of curricular and faculty time to the capstone project. The thoughtful selection of this project is critical to experientially learning about the field of health data science. Students should try to select their project by the beginning of the fall quarter of the second year.

Students will discuss their capstone areas of interest with the Seminar program leader and Research Ambassador, who will help facilitate contact with prospective capstone mentors.

When selecting a capstone project, students should consider the following:

1. Specific skills you want to gain from the experience.
2. Compatibility of the capstone experience with your interests in health data science: In addition to forming the basis for the qualifying and comprehensive examinations, the project will become part of your health data science "portfolio."

Project Requirements

1. **First-authored oral or poster presentation at a national or international meeting:**

This requirement involves submission of a first-authored abstract to a nationally or internationally recognized scientific meeting/conference within the scholar's academic field and acceptance of that abstract for either poster or oral presentation. The abstract should describe either data science methods development or comprehensive data science application to a health-related problem.

It is expected that the work represent a substantive contribution to the scholar's research field. The format should follow that suggested by the conference to which submission is intended.

It may be acceptable in selected cases, with pre-approval by the scholar's Graduate Committee, to complete work that was started prior to enrollment in the program.

Achievement of this requirement will be considered complete upon satisfactory review by the scholar's Graduate Committee and upon written confirmation indicating acceptance of the abstract by a committee-approved conference.

2. **Submission as first author of a peer-reviewed manuscript:** The scholar will prepare and submit a first-authored manuscript for publication in a peer-reviewed journal that is approved by the Graduate Committee. The paper should relate to data science methods development or comprehensive application of data science methods in a health-related field.

The manuscript may be a comprehensive extension of the work submitted in abstract form to a national meeting. It is expected that the work represent a substantive contribution to the scholar's research field. The format should follow that suggested by the journal to which submission is intended.

It may be acceptable in selected cases, upon approval of the scholar's Committee, to submit work that was started prior to enrollment in the program.

Achievement of this requirement will be considered complete upon satisfactory review by the scholar's Graduate Committee and upon written correspondence indicating receipt of the manuscript by an approved peer-reviewed journal.

Of note, it is not acceptable for a scholar to present an already submitted, accepted, or published manuscript to his/her committee and expect automatic approval. The final arbiters of the soundness of the work will be the Graduate Committee members and not the journal editors or its reviewers.

Committee members will evaluate this latter requirement just as they would when reviewing any manuscript for a respected journal, with attention to the clarity of presentation, the validity of methods and applications, and the thoughtfulness regarding the limitations and implications of the work. Although inherently difficult to evaluate, the work must represent at least an incremental advance in the scholar's field. It is expected

that several rounds of revision may be needed before a committee member is satisfied with the product.

- 3. Preparation of a background methodology report:** For this requirement, the scholar will compose a comprehensive and systematic background review of methodology. "Comprehensive and systematic" means a complete description of the data science/statistical/machine learning methods used or adapted in the paper.

This review should take the form of a four-to-seven-page single-spaced report (not including tables, figures, or references) that demonstrates the scholar's mastery of the field. The review should typically provide clear rationale for the methods used or/and developed for the scholar's primary research project, i.e., for the first authored manuscript requirement. Permission to provide methods background for a different area would need to be agreed upon by the Committee and will be given only under exceptional circumstances, e.g. the methods or/and literature in the field of the paper is too narrow. Importantly, the report is expected to expand detail on methods over what is in the manuscript in order to demonstrate solid understanding by the student of the technical methods used in their manuscript.

This report should include a full literature review with respect to the history of methods and their development and the student should be able to critique the methods describing both positive and negative aspects. This report should be constructed with an eye towards some form of publication (e.g. as a technical report to be linked from the student's online portfolio) but this is not required.

Achievement of the requirement will be considered complete upon satisfactory review by the scholar's Graduate Committee.

- 4. Compilation of an online code and analysis portfolio:** For this requirement the student will develop a data science portfolio that they will be able to use when entering the job market. The portfolio should provide details of the student's interests/passions in data science, examples of code, application areas of interest, links to papers, etc.

These four components for the Capstone were chosen to emphasize the crucial skills necessary to be a successful data scientist that go above and beyond purely technical skills. This includes but is not limited to:

- Carefully describing methodology used in a written format,
- Presenting work orally, and
- Conveying the importance of one's work in peer-reviewed publications and elsewhere.

Achievement of the requirements will be considered complete upon satisfactory review by the scholar's Graduate Committee. The determination of satisfactory will necessarily be somewhat subjective, but the portfolio should properly showcase the student's abilities according to best practices (e.g. <https://www.coursera.org/articles/how-to-build-a-data-analyst-portfolio>).

Working with Your Graduate Committee

The student should request academic mentoring as needed from his/her Committee members. By this, we mean scholarly guidance in methods choice or/and development, appropriate application to health-related research, and appropriate considerations of assumptions, limitations and interpretations thereof. While this will be done mainly in the context of the project that will serve to fulfill the first-authored manuscript requirement, there may be other needs for mentoring in secondary projects as well. While some of this mentoring will be provided by the Health Data Science teaching program as a whole it is expected that the Committee members will also contribute.

We expect that students will meet with each committee member at least once quarterly and with their entire committee together at least three times while they are in the program, at a:

- **Initial Committee Review**, at the latest by September 1 of the Capstone (2nd) year
- **Pre-graduation Review**, 6 months prior to expected graduation date (usually December of the 2nd year)
- **Final Graduation Review**, 3 months prior to expected graduation date (usually March of the 2nd year)

The student should take the responsibility for scheduling meetings and setting the agenda, including sending out the agenda and accompanying materials (e.g., drafts of products) by e-mail at least one week prior to the meeting.

Educational Practice (MS Only)

Students in the program will be expected to act as an educational apprentice (EA) for one course during their second year. This experience typically involves leading a weekly small-group discussion section of 10 to 15 students, holding office hours for students and grading homework assignments and projects. This requirement is designed to provide students with a valuable teaching experience without having a significant impact on the time needed for their capstone project work. In all cases, students will have taken during their first year the courses that they are asked to EA. Students will enroll in DATASCI 300 to receive credit in the term they EA.

Acting as EAs provides students with important skills – while working under the guidance of experienced faculty – that they can subsequently transfer into the workplace. Even if they are not working in academia, the ability to explain concepts and interpret results for other members of the team are critical skills for a data scientist that they will acquire in their role as EA.

Program End and Graduation

Application for Graduation

Students initiate the graduation process by submitting the Application for Graduation in the student portal. This petition should be submitted at the beginning of the term in which the student expects to graduate.

The term that this petition is submitted must match the student's expected graduation term.

Degree Conferral and Diplomas

Following the end of spring term on the UCSF academic calendar, the program, the Graduate Division and Office of the Registrar will begin the process of verifying degree completion. Diplomas will be available eight to twelve weeks after the end of the term. The Office of the Registrar's website provides details on [how to obtain your diploma](#).

Exit Survey

At the end of the academic year, each student is required to complete an exit survey to gather feedback about the program as a whole.

Graduation

Students have two opportunities to participate in graduation ceremonies. The first is a commencement ceremony and reception held by the UCSF Graduate Division in May. The second is a program-wide celebration to be planned for late-May/early June.

UCSF Email Access after Graduating

Students will lose access to their UCSF email six months after the end of the graduation term, or after employment separation from the university. Email forwarding is not available and students may not receive prior notice or warning of email deactivation. Graduates are eligible to establish a [UCSF Alumni email account](#).

Policies and Procedures

Policy on Student Progress: Requirements, Notification, Remediation, and Review

1. Criteria for satisfactory academic progress

Students should meet with their advisors once a quarter. Student progress is assessed at the end of each quarter on the basis of course grades and performance in the program.

Unsatisfactory progress indicators are determined by each individual program. These may include, but are not limited to:

- Failing an exam
- Failing grades in any course
- Falling below a 3.0 GPA
- Failure to achieve milestones toward the capstone requirement (where applicable)
- Unprofessional conduct
- Issues in academic misconduct and professionalism infraction

Note: Disciplinary problems and other infractions that fall within the scope of UCSF's Policy on Student Conduct and Discipline will be referred for consideration by UCSF's Director of Student Rights and Responsibilities.

2. Process by which failing students will be notified and remediated

Students whose progress is unsatisfactory (according to one or more of the criteria listed above) will be notified and will meet with the advisor and the program director to develop an individualized remediation plan to address the deficiencies. The meeting results in a memorandum of understanding that clearly outlines specific steps and associated deadlines that the student must fulfill in order to receive a satisfactory report. The report is then signed by the following parties: the student, the primary advisor, and the program director. At this point, the report is filed in the student's academic file within the program, and a copy is sent to the assistant dean for diversity and learner success.

Should the student be unable to fulfill the expectations according to the timeline outlined in the letter, the student will be subject to dismissal from the program.

The process for in-depth review of a student's eligibility for dismissal will follow the UCSF [Divisional Procedure for Student Grievance in Academic Affairs, section 4.0](#), and will be conducted by the program's in-depth committee

3. Composition of the in-depth review committee, should one be necessary

The in-depth review committee shall consist of three faculty members within DEB who are knowledgeable about the academic program and student performance standards, and may include academic officers of DEB, as long as they number in the minority of those committee members present at the review hearing.

Members may include faculty advisors, capstone mentors, course directors, or representatives of the DEB who serve on the executive, curriculum, or admission committees.

Policy on Academic Misconduct

The Department of Epidemiology and Biostatistics education programs emphasize the importance of social justice and equity through a code of ethical behavior and academic honesty. The faculty and students work together to create a learning environment that values academic honesty, protects the integrity of an individual's work, and enhances the integrity of DEB education programs.

Definition of Academic Dishonesty and Misconduct

1. **Cheating:**

- Fraud, deceit, or dishonesty in an academic assignment, using or attempting to use materials that are not authorized, or colluding with others to do so.
- Copying or attempting to copy from others during an exam or on an assignment.
- Communicating answers with another person during an exam.
- Pre-programming an electronic medium to contain answers or other unauthorized information for exams.
- Using unauthorized materials, prepared answers, written notes, or concealed information during an exam.
- Allowing others to do an assignment or portion of an assignment.
- Submission of the same assignment for more than one course without prior approval of all the instructors involved.
- Collaborating on an exam or assignment with any other person without prior approval from the instructor.
- Taking an exam for another person or having someone take an exam in place of the student.

2. **Plagiarism:** An author's work is his/her property and must be respected by documentation. Plagiarism refers to the use of another's ideas or words without proper attribution or credit and includes: copying of passages from works of others (e.g., books, articles, films, graphics, websites or other electronic sources) into a student's homework, essay, term paper, examination, qualifying papers, or class project without proper citation or acknowledgment; the use of the views, opinions, or insights of others without acknowledgment; and paraphrasing of a person's characteristic or original phraseology, metaphor, or other literary device without acknowledgment or proper citation.

3. **False information and representation, fabrication, or alteration of information:** Furnishing false information in the context of an academic assignment. Fabricating or altering information or data and presenting it as legitimate. Providing false or misleading information to an instructor or any other University official.

4. **Theft or damage of intellectual property:** Sabotaging or stealing another person's assignment, book, paper, notes, experiment, project, electronic hardware or software. Improper access to, or electronically interfering with, the property of another person or the University via computer or other means. Obtaining a copy of an exam or assignment prior to its approved release by the instructor.

5. **Distribution or sharing of lecture notes or exam items/information to provide undue advantage to others or for commercial purposes:** Selling, distributing, website posting, texting, emailing, or publishing course lecture notes, handouts, readers, recordings, exam items, confidential or other information provided by faculty to give advantage to others or for any commercial purpose, without the express written permission of the faculty.
6. **Research and practice:** All students are expected to conform to all relevant Institutional Review Board guidelines, as well as acceptable ethical practices.

The list above is not comprehensive. Other acts not explicitly outlined within each section above, but fitting the spirit of the code, also will be considered if allegations of academic misconduct are made.

More information can be found in the [UCSF Code of Conduct and Integrity of Research](#).

The DEB faculty and administration will respond to alleged acts of academic misconduct in a respectful and supportive manner that emphasizes fairness, timeliness, due process, and transparency. The process for notification and remediation of academic misconduct will follow the steps outlined above in the Policy on Student Progress, section 3.