

# Biomedical Data Science Graduate Program Student Handbook

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## **1. Introduction and overview of Stanford resources**

This handbook contains policies, procedures, and advice for the Department of Biomedical Data Science (DBDS) graduate program, and augments other information from the School of Medicine's Biosciences Program, and Stanford University. Relevant information can be found on the following webpages, which are listed here for reference.

### **1.1. DBDS**

- Stanford Bulletin sections on DBDS (with curriculum requirements): [PhD](#), [MS](#), [PhD Minor](#)
- [Department of Biomedical Data Science Website](#)
- [DBDS Forms and Downloads](#)
- [DBDS Current Students Homepage](#)

### **1.2. Academics**

- [Information for new graduate students](#)
- [Current Students | Stanford Biosciences PhD Programs](#)
- [Graduate Student Tracking system](#)
- [Graduate Education | Stanford University](#)

- [Graduate Academic Policies and Procedures](#)
- [Students | Registrar's Office](#)
- [Information for Current Students | Office of the Vice Provost for Graduate Education](#)
- [Office of Community Standards | Student Affairs](#) (Honor Code and Fundamental Standard)

### 1.3. Stanford Catalog

- [Stanford University Explore Degrees \(a.k.a. Bulletin\)](#)
- [Stanford University Explore Courses](#)

### 1.4. Computing

	For research	For course projects	Risk Level of Data	PHI/HIPAA Aligned	Point of Contact / Notes
<b>On Prem</b>					
Sherlock	X		Low/Moderate		Run by SRCC
Carina	X		High	X	Run by SRCC
SCG	X		Low/Moderate		Run by Genetics dept.
Farmshare	X	X	Low/Moderate		Run by SRCC
<b>Cloud</b>					
NERO GCP	X		High	X	
GCP		X	Low, Moderate and High *	X	See Cloud Acct Mgt Svc Page.
Azure		X	Low, Moderate and High *	X	See Cloud Acct Mgt Svc Page.
AWS		X	Low, Moderate and High *	X	See Cloud Acct Mgt Svc Page.

**Cloud Acct Mgt service page:** <https://uit.stanford.edu/service/cloudacctmgmt> (For access to GCP, AWS and MS Azure services and support.)

**Google Cloud Credit request form:** <https://forms.gle/9o7FpRp8mYZiJnn76>

**More Information on Stanford Research Computing website on Stanford HPC Systems:**  
<https://srcc.stanford.edu/support/gettingstarted-hpc>

## **1.5. NLM/NIH**

- NLM-funded training programs: <https://www.nlm.nih.gov/ep/GrantTrainInstitute.html>
- NIH public access policy: <https://publicaccess.nih.gov/>
- Track your publications (and check their compliance status) in <https://www.ncbi.nlm.nih.gov/sites/myncbi/>
- NIH-funded peer-reviewed articles, publicly available on [PubMed Central](#)
- NIH Manuscript Submission System ([NIHMS](#))

## **2. For students**

If you are new to Stanford (or newly admitted to the program), check out the [Gateway for New Graduate Students](#) by the Office of the Vice Provost for Graduate Education. It has a wealth of information.

In addition, the DBDS Department holds an annual retreat just before the start of the fall quarter. Attendance is required for all PhD students and Academic MS students. Honors Cooperative Program MS students and Coterm MS Students are welcome to attend if so able. During the retreat, you meet students, faculty, staff, and some alumni in an informal setting. You will learn about the faculty's research and labs. You will also hear the latest regarding student research during poster sessions. On the last day of the retreat, there is an orientation session for new students, and returning students meet in "huddles" to talk about key milestones for their upcoming year. There are lots of opportunities during the retreat to learn about one another, the program, and Stanford.

### **2.1 How to get a computer**

DBDS loans laptop computers to first-year PhD students, and, when there are sufficient computers, Academic MS students. If you borrow a laptop, you should return it at the end of your first year. Your research supervisor is responsible for your computing resources from then on.

### **2.2 How to get ergonomic equipment**

First year student: contact DBDS Student Services. Others: this is the responsibility of your research supervisor. General information can be found on [Stanford's Environmental Health & Safety webpage](#)

### **2.3 How to stay updated on DBDS events**

To stay informed of DBDS, students will receive the weekly DBDS Digest and be invited to join the DBDS Student Slack Channel. The DBDS Weekly Digest contains information on the latest happenings within the program, including research opportunities, news, and upcoming

events. You can also subscribe to the digest [here](#). Once matriculated in the program, students will also receive an invitation to join the DBDS Student Slack Channel from one of our student representatives. The Slack Channel is a valuable community building tool, where resources and information are shared informally between peers within the DBDS program.

## **2.4 How to reserve a conference room**

QR codes are posted at the entrance of each conference room in MSOB Suite 300. You can scan the code to view availability. To make a reservation, email the DBDS Student Services Officer which room, date, and time you would like to reserve. Larger rooms (such as MSOB x303) and other spaces can be requested through [Medscheduler](#).

## **2.5 How to send DBDS email**

- To reach student services please use the following email:

[Dbds-studentservices@stanford.edu](mailto:Dbds-studentservices@stanford.edu)

- The following are the key DBDS-related email lists. Send to *listname@lists.stanford.edu*. If you send from a non-Stanford email address, your message will be held for moderation.
- If you need to find all the lists you are on, subscribe, or need help, check <https://uit.stanford.edu/service/maillinglists/tools>
- Most of these use the Mailman tool (mailman.stanford.edu is a shortcut to the above)

Listname	Description
dbds-program-exec	DBDS Graduate Program Executive Committee
dbds-students	All DBDS Students
dbds-cotermis	Coterminal MS Students
dbds-honors-coop	HCP: Honors Cooperative MS Students
dbds-phdms-students	PhD & Academic MS students
dbds-phd-students	PhD students only
dbds-ms-students	Academic MS students only
dbds-all-people	Everyone affiliated with the Department of Biomedical Data Science
dbds-job-openings	Job Openings in Biomedical Data Science
dbds-colloquia-tu	Announcements for DBDS colloquia
dbds-other-seminars	Other seminars of interest

## **2.6 How to submit a help request**

You can submit a help request on a wide variety of topics through Stanford Services (formerly HelpSU). This includes computer/information technology issues, and those involving the registrar, finance, and other administrative offices. You can contact the UIT Service Desk at 5HELP or (650) 725-4357, or [submit a Help request](#).

- [SU Services - Services Portal Home](#)

The DBDS student services team can also help with many issues, including working with the Registrar's Office.

## **2.7 Personal wellness**

Stanford has many resources to promote student health and wellness. If you need help, feel free to reach out to the DBDS student services team at any time. Here are a few pointers:

- Counseling & Psychological Services (CAPS) <https://vaden.stanford.edu/caps> - including the ability to get urgent help now
- General well-being resources at Stanford: <https://vaden.stanford.edu/well-being>
- Biosciences health and wellness resources: <https://biosciences.stanford.edu/current-students/resources/health-and-wellness-resources/students/resources/health-and-wellness-resources/>
- Stanford's Office of Accessible Education, which provides support for those with disabilities, including providing letters of accommodation to instructors and programs: <https://oe.stanford.edu/>

## **2.8 What to do in a personal emergency**

- [Graduate Life Office | Student Affairs](#)

## **2.9 What to do in a Stanford emergency**

- [Emergency Information | Stanford University](#) (In the event of a disaster or emergency affecting the Stanford community, this site will provide up-to-date information and important instructions pertaining to the situation)
- [Stanford Emergency Resources | Emergency Information](#) (general "what to do if")
- [Emergency Information | Stanford University EH&S](#) (contact info, preparedness, hotlines, etc. Also resources for your out-of-town relatives in case Stanford is unreachable)
- [AlertSU FAQs - SUDPS](#) AlertSU is Stanford University's emergency notification system used to communicate time-sensitive information during an emergency event affecting campus. Be sure to keep your information up to date in [Axess](#) to receive alerts.

## **2.10 What to do in a non-emergency**

- [Gateway for New Graduate Students | Office of the Vice Provost for Graduate Education](#)  
Information about health and wellness, housing, finances, student life, support, etc.



## **2.11 How to receive and send US Mail**

DBDS students have mailbox space in the MSOB 3rd floor Department of Biomedical Data Science suite (3 West). DBDS-related U.S. outgoing mail requires either adequate postage affixed or a departmental postage code, available through Student Services. The DBDS campus mail code for interdepartmental mail is MC 5464.

The USPS mailing address is:

Biomedical Data Science Graduate Training Program  
Stanford University School of Medicine  
1265 Welch Rd, MSOB, X-343, MC 5464  
Stanford, CA 94305-5464

## **2.12 How to use Cardinal Print**

Cardinal Print multifunction devices (MFD) have been installed at the Administration cubes (between x3C57 and x3C59) and x397 in the DBDS suite. Printing costs are \$0.05/page for color and \$0.008/page for black and white.

### **Learn to use Cardinal Print**

There are several ways that you can learn how to use a Cardinal Print MFD:

1. **Check out the Quick Reference Guides.** These will be posted by all Cardinal Print devices with instructions on how to print, copy, and scan.
2. **Visit the [Cardinal Print website](#).** Review the [short videos](#), [User's Guide](#), and [FAQs available online](#).
3. **Watch an on-demand training.** A [recorded training session](#) is available on the Cardinal Print website. More details about upcoming Zoom training sessions will be coming soon.

### **Ensure you have the required print driver**

The Cardinal Print service named **CardinalPrint-SU** should now be installed on your device. If it is not, simply download it yourself at the [Cardinal Print website](#). If you need help, contact your local IT support staff.

### **Get help or report an issue**

For help with a Cardinal Print device, contact the UIT Service Desk at 5-HELP or (650) 725-4357, or [submit a Help request](#). If you report a service issue, remove the Device Identification Label card from the pouch and turn it over so others know the issue is being addressed.

## **3. Academics and Research**

### **3.1. Monday Talks: Research in progress/journal club**

DBDS has a regular seminar series that meets each Monday, 12:15 pm–1:15 pm. **All PhD and Academic MS students are required to attend. All Coterminal and HCP students are encouraged to attend.**

You can get one unit of course credit by signing up for BIOMEDIN 201. You may enroll up to 3 times.

Each session has two 30-minute student talks. Second-year and later students present their research-in-progress. First-year students can do that, or present a journal club. During the Summer Quarter there is a special format in which DBDS faculty lead a discussion of a paper of their choosing.

- Journal Club. The purpose of a journal club presentation is to gain practice in oral presentation skills, and to learn to present and fairly critique a published paper in some area of biomedical data science.
  1. Pick a paper.
  2. Clear it with your Academic Advisor.
  3. Prepare your talk/slide presentation.
  4. Practice that with either your Academic Advisor or your Research Advisor, usually the week before the scheduled presentation.
  5. Give the presentation.

The paper should reflect your own interests, and engage other students. A paper about biomedical data science methods published in the last couple of years with at least a moderate number of citations is ideal. Please avoid papers that are very long or that require excessive background in some niche area of biology or medicine. Drafts or papers in press are not acceptable. There is more Journal Club advice on our website:

<https://dbds.stanford.edu/for-current-students/#presentations>.

- Research-in-Progress. The purpose of a research-in-progress talk is to gain more practice in presentation skills, to present your work to the DBDS community, and to get useful feedback on both your presentation and your work. You should:
  1. Prepare your talk/slide presentation in consultation with your PI.
  2. Practice it with your Academic Advisor or your Research Advisor, usually the week before the scheduled presentation.
  3. Give the presentation.

Because this venue is open the public, it is important that you discuss issues about disclosure of intellectual property with your research supervisor prior to giving the talk. The talk title and abstract are viewable by the outside world, and anyone may attend the talk. This is different from presentations at lab meetings, which are considered to be closed meetings. You may include a slide at the beginning of your talk, saying: "This is research in progress and not for public disclosure. Please do not take photos of the slides or discuss outside of this venue."

For either format, if you use or adapt figures or tables from the work of others, please make sure there is an appropriate citation to that source on the relevant slide.

### 3.2. Advisors

- **Academic Advisor:** Each incoming student is assigned an academic advisor. If you later join the lab of your academic advisor, a new academic advisor will be assigned. You make an appointment and meet with your academic advisor at least once a year to review your course [flowsheet](#) and make sure that you are on track for graduation. Your academic advisor can also give you curriculum advice as needed, of course. Note that you are ultimately responsible for ensuring your progress through the program; the advisor is just giving advice.

If you are considering submitting a course waiver request (for curriculum requirements that correspond to courses you have already taken), you should discuss this with your academic advisor before submitting waiver requests. Please get their approval before submitting your waiver request form to DBDS student services.

Feedback on the effectiveness and engagement level of the student-advisor relationship is appreciated. Usually, the academic advisor serves for the duration of the student's study, but there may be a need or desire to change advisors. The process is to notify Student Services, explaining the reason for the change and (optionally) requesting an alternative advisor. You may request that this be kept confidential. Student Services will assign a new advisor, in consideration of the student's request as well as other program and faculty constraints.

- **Research Advisor:** Each student in the Academic MS and PhD degree programs will have at least one research advisor, chosen by mutual agreement by end of the student's first year in the program. **This research advisor should be either a [Primary or Secondary DBDS Faculty member](#), or on the [Advising Faculty list on the DBDS website](#).** If your research advisor is on the Collaborating Faculty list, then you will need to choose a coadvisor from the Primary, Secondary or Advising faculty lists. You may also choose to have a co-advisor for other reasons as well.
- **Co-Advisors:** If you have more than one advisor, there's a university requirement to identify one or the other of your advisors as the primary mentor, and the other as the comentor. The primary mentor/advisor should be on the DBDS Primary/Secondary Faculty or Advising Faculty list. By default, the primary advisor will be in charge, but other plans are possible as long as everyone agrees. This needs to be discussed ahead of time, that is, when the advisors are agreeing to be advisors, not later. DBDS is not responsible for setting this up -- you and your advisors are. You should make sure that they discuss who is ultimately responsible for monitoring your research progress, and the details of your financial support. Please send all updates to DBDS Student Services and cc the Executive Director.

To add new members to the DBDS Graduate Student Advising Faculty, please send your request to DBDS Student Services for consideration by the DBDS Graduate Program Executive Committee.

### **3.3. Course registration**

#### **3.3.1. Study list**

By 5 pm on the first day of class each quarter you must submit a study list in [Axess](#) to register for classes. Note that there is a late fee.

#### **3.3.2. Grading basis and minimum GPA**

Refer to [the DBDS section of Explore Degrees](#) for details of which courses must be taken for a grade, and which can be taken Credit/No Credit. If you sign up for the Credit/No Credit option in a course that should have been taken for a letter grade, you should email the instructor to ask what the letter grade would have been, then forward the response to the Student Services Officer to be included in your file.

Students must maintain an overall GPA of 3.0. If your GPA does not meet the minimum requirement, the DBDS Graduate Program Executive Committee may require that you submit a plan that explains how you will remediate any deficiencies, resolve any incomplete grades, and bring your GPA back above the threshold.

#### **3.3.3. Units**

All funded DBDS students are required to enroll in 10 units every quarter. If you enroll in more than 10 units, you will be responsible for paying the additional unit rate charged by the Registrar's Office.

With Research Assistantships (RAships), the 10-unit rate is considered half time (20 hours per week), meaning that for 20 hours per week you are working on the research project, and for 20 hours per week you are taking classes towards your degree requirements. This is called a 50% RAship. Note that this can be adjusted proportionally: a 25% RAship would pay for 10 hours per week of research.

#### **3.3.4. Cross-listed courses**

When taking a course that is listed in both DBDS and another department (such as Computer Science), please sign up for it under the BIOMEDIN or BIODS number. This is especially important for BIOMEDIN 299 Directed Reading and Research.

### **3.4. Waivers and Transfer Units**

Students who have been adequately trained in a particular area through graduate-level coursework at another institution may be permitted to waive courses and substitute more advanced work. First-year students (MS and PhD) may petition the DBDS Graduate Program Executive Committee for waivers for specific courses or domain unit requirements. **These course waiver requests are due in early November of your first year.** Waiver requests after your first year in the program will not be reviewed. Student Services will send detailed instructions to you by email early in the Autumn Quarter of your first year. Please complete that paperwork, and discuss with your Academic Advisor before submitting it for final approval by the DBDS Exec.

For MS students: Note that prior coursework from outside Stanford cannot reduce the 45 unit residency requirement for the MS degree.

For PhD students: Note that there is a [residency requirement](#) of 135 units (of which a maximum of 24 may be transferred from outside or from a Stanford M.A. or M.S. degree), and a requirement for 52 units of formal coursework (meaning a classroom-based course, not research units).

**New policy (April 2023) regarding Transfer Units for PhDs:** The intent is to enable students entering the DBDS PhD program with prior graduate degree coursework in relevant courses to go through the DBDS graduate program curriculum in less time and get to research sooner. A maximum of 24 units for graduate work completed at another institution may be applied to the requirements for the degrees of Ph.D. Transfer of units will be evaluated by the Director of Graduate Studies and other department faculty members on a course by course basis. Graduate work accepted for transfer of residency does not automatically exempt a student from having to complete a course requirement for the degree. University policies related to transfer of credit for graduate work done elsewhere is located in GAP 3.2.1 Residency Policy for Graduate Students.

Details:

- PhDs can apply for transfer units **after their first quarter in the program**, using the waiver form.
- We will grandfather in this new policy
- No waivers of DBDS Program core courses (BIOMEDIN 202, 212, 214 and 215)
- Only allowed for graduate level courses taken within the last 4 years

### **3.5. Course flowsheet**

The DBDS MS and PhD course flow sheets are available on the [DBDS Forms and Downloads webpage](#).

When submitting a course flow sheet:

1. Make sure you put your name and the date on it.
2. List the course number in the column on the left. List all courses, past, present, and future. Put one course per line.
3. Put the number of units for the course in main part of the grid.
4. Waived courses and units should be noted in the “Course” column, but zero units should be attributed to them.
5. BIOMEDIN 299 research units need to be included in the “unrestricted section”.
6. Enter the grade (A+, CR) in the grade column near the right. For the January report, make sure it includes grades from Autumn Quarter.
7. If you don't see meaningful row and column sums, and the flowsheet does not compute your GPA, then you have done something wrong.

### **3.6. Annual Flowsheet Review with your Advisor (Annually)**

Meet with your Academic Advisor according to the frequency in the following table. For PhD and Academic MS students: once a research advisor has been established meet with them instead. You should review an up-to-date flow sheet with your advisor: include grades for completed courses, and all projected coursework. Note that you are responsible for making sure you are on track to meet the degree milestones.

The DBDS Executive Director will automatically review grades every quarter. Reach out to the ED with any grading concerns.

**All PhD students are required to complete the Individual Development Plan (IDP) annually; this is a separate requirement from the DBDS Flowsheet Review.**

<b>Degree program, status</b>	<b>To do</b>
MS - MS/HCP/co-term	Meet with Academic Advisor at least 1x/year: review flowsheet, review waiver request to get advisor approval, go over classes and interests. Submit flowsheet to SSO after first quarter of attendance. If changes to flowsheet occur, resubmit updated flowsheet to SSO.
PhD, year = 1	Meet with Academic Advisor at least 1x/year: review flowsheet and go over classes and interests. Submit flowsheet to SSO. If changes to flowsheet occur resubmit updated one to SSO. Choose a Research advisor by summer. Do 3 lab rotations, pick a lab.
PhD, year $\geq$ 2, still in classes	Meet with Research Advisor at least 1x/year: Establish IDP meeting, review flowsheet to make sure you are on track to graduate, practice student seminar talk with advisor, prep for Quals exams. Complete 1 unpaid TA assignment.
PhD, year = 3, done with classes	Meet with Research Advisor at least 1x/year: Review flowsheet to make sure student is on track to graduate, practice student seminar talk, finalize doctoral dissertation reading committee and prepare for Research-in-Progress talk (occurs 6-9 mo after Quals). Complete 1 unpaid TA assignment.

PhD, year = 4	Meet with Research Advisor at least 1x/year: review flowsheet and make sure you are on track to TGR by completing 135 units by the end of winter quarter, practice student seminar talk. Meet with Doctoral Dissertation Reading Committee.
PhD, year = 5	Meet with Research Advisor at least 2x/year: Meet with advisor to discuss options for an out-of department orals committee chair. Schedule orals. Submit dissertation. Graduate.

Summary of Milestones for each PhD cohort after choosing a Research Advisor:

YEAR	MILESTONES	IDP Meeting (due 8/1)	Progress Report (due 12/1)	Dissertation Reading Committee Meeting
2	Quals (written & oral)	√	* √	
3	Research in Progress Talk	√	√	1x/yr **
4	Finalize Dissertation Reading Committee Members	√	√	1x/yr
5	Oral Defense	√	√	2x/yr***
5+	Oral Defense, if not earlier	√	√	2x/yr

\* 2nd year Progress Report - 1 quarter only

\*\* Research in Progress Talk counts as your dissertation reading committee in your 3rd year

\*\*\*Meet with Reading Committee twice in the 5<sup>th</sup> year. Oral Defense counts as one meeting.

### **3.7. Teaching Assistant (TA) requirements and guidelines**

There are four kinds of student teaching positions in DBDS:

1. Assigned. The DBDS Graduate Program Executive Committee determines the TA assignments once a year, typically in July. Typically, the assignments that satisfy the DBDS requirement are to DBDS core courses. PhD students are required to TA two (3+unit) courses. Academic MS students receiving fellowship support through DBDS are required to TA one (3+unit) course. Others, including HCP and co-term MS students, are exempted from this requirement unless they receive fellowship support from the DBDS program at any point while in the program. The TA requirement is usually completed after your first year in the program. TA's are expected to review and understand the TA Guidelines (below).

2. Voluntary. The instructor and student agree that the student will help with course development or serve as course assistant. We refer to these positions informally as TAs, but they are **not** formal (e.g. 25% or 50%) TAs. This may be for pay ("moonlighting"). For DBDS courses, such pay will be in the form of stipend that depends on the expected workload (e.g. the number of units of the course). If not for pay, the student can petition DBDS Graduate Program Executive Committee to have this count towards the DBDS TA requirement. Typically, these moonlighting TA positions go to senior graduate students who have passed their Quals, and completed their coursework and TA requirements.
3. Formal TAs. Some departments (such as CS, but **not DBDS**) offer students formal TA positions, which may cover most or all of your stipend and tuition. Sometimes these are offered to DBDS students.
4. Assistance with seminar series. For some seminar series, such as BIOMEDIN 205 and 208, a trainee or fellow may assist the course director with logistics, scheduling, and administration. Arrangements for these courses are between the instructors, the DBDS program, and individual trainees or fellows, and do not satisfy the DBDS TA requirement.

### 3.7.1. TA Guidelines

The purpose of the teaching assistant (TA) requirement is to help students understand the process of organizing and delivering a course as an intellectual academic exercise, and learn about course administration. Students should consider their unfunded teaching partly as a contribution back to the program and their fellow students, as well as an opportunity to learn pedagogical methods.

Each course may have different specific requirements, but these are general guidelines for faculty and TA to use as a starting point for discussion. These should be reviewed before each course begins to set common expectations.

1. The time commitment is intended to be roughly 10 hours per week during the TAs. We will make sure the instructors are clear about the ballpark hours per week. Also, we recommend that you inform your research advisors that you will be TA'ing for one quarter so they can scale back expectations during that period. If you find that you are doing way more than 10 hours per week, ie 20 hours a week and no time for research, please don't hesitate to discuss with the instructor of the course as that is not the intent.
2. It is expected that a course will have administrative personnel (often the administrative assistant of the instructor) who will handle routine administrative issues such as room reservations, copying, logistical coordination of guest lectures and procurement of supplies for the course.
3. TAs may be assigned in-class logistical support tasks, such as in-class homework logistics (distribution/accepting assignments), videotaping, information dissemination, and communication with the administrative support personnel.
4. TAs should have regular office hours for interaction with students.



5. Unless specifically exempted, TAs should attend all classes. Vacations should not be scheduled during the quarter, unless it is pre-arranged with the Instructor.
6. TAs may create and grade assignments and exams. Instructors should examine and approve these, and must take overall responsibility for them.
7. TAs are encouraged to give at least one lecture during the course, in order to have the experience of preparing a course lecture and to appreciate the differences from research talks.
8. TAs may be asked to maintain a course website, with relevant materials. Routine administration of these sites should be shared with the administrative support personnel.
9. TAs may be asked to create class newsgroups or email lists, and to monitor activity on these, and respond appropriately.
10. Decisions about final grades rest with the faculty, but they are encouraged to consult with the TAs to learn of extenuating circumstances, particularly if the TAs have had the major responsibility for grading homework assignments and/or examinations.

Special challenges may arise in supporting the distance education students who take DBDS courses via SCPD, the Stanford Center for Professional Development. These students have the task of following the class without the benefit of live interaction with faculty, TA or other students. Often these students do not know where to look for information that might be considered common knowledge.

1. TAs should familiarize themselves before the course with SCPD policies and procedures. SCPD offers orientations to faculty and TAs. You can contact SCPD at <http://scpd.stanford.edu>.
2. TAs should arrange a procedure for talking with SCPD students on the phone or by email during office hours. The hardest part about TA-ing an SCPD course is figuring out when SCPD will support the student and when you have to step in. Mainly, your job is to cover the material in the class, not provide technical assistance to the student.
3. SCPD handles student registration and tuition.
4. The students should know the difference between an incomplete and a withdrawal. They should know if a crisis occurs they can request an incomplete.
5. Many SCPD students are unaware of the difference (if any) between the SCPD course description and the course description in the Stanford Bulletin. Most of the time, the course descriptions on the SCPD webpages are adequate.

### 3.8. Publishing a paper and NIH Public Access Policy

#### 3.8.1. Review of Publications by Stanford faculty

All papers and abstracts submitted to journals, conferences, books or other publications must be reviewed by a Stanford faculty member. This policy applies to any publication, regardless of authorship, that describes work done at Stanford, has research support through Stanford, or that mentions a Stanford affiliation. It is the responsibility of the first author to ensure that sufficient time is allocated for this review process. No publication may be mailed to a journal or conference without final approval from the faculty member.

#### 3.8.2. NIH Public Access Policy and PMCIDs

If you or your work has been supported by NIH (*even if you are 17<sup>th</sup> author on a manuscript*), then you are required to comply with the [NIH Public Access Policy](#). In particular, each publication must be submitted to PubMed Central (PMC), and get a PMCID assigned within 3 months of submission. **This is extremely important. Follow the instructions on their webpage. NIH Policy:** To advance science and improve human health, NIH makes the peer-reviewed articles it funds publicly available on [PubMed Central](#). This applies to all students funded through our T15 (NLM) training grant at any time while working on any part of such papers or the research reported on in them (as well as to anyone else receiving NIH funding). The NIH public access policy requires scientists to submit final peer-reviewed journal manuscripts that arise from NIH funds to PubMed Central **immediately upon acceptance for publication** through the NIH Manuscript Submission System ([NIHMS](#)). This also affects any publication agreement / copyright transfer agreement you (or the first author) might have to sign when submitting papers, so make sure you read the policy and act accordingly.

We are required to report all publications by trainees, and the publication tracking system automatically flags as **non-compliant** publications not submitted for open access in PMC. It is your responsibility as an NIH-supported researcher, not ours, to “catch” and submit them.

#### **ACTION:**

1. You can track your publications (and check their compliance status) in <https://www.ncbi.nlm.nih.gov/sites/myncbi/>
2. If you are a co-author (not just first author or senior author) on any published paper, and you were funded by the NLM T15 training grant at any time when you did work on the paper – then **you** MUST ensure that the paper is submitted – see <https://publicaccess.nih.gov/>
3. ADVISORS – also please watch this as your trainees let you know about their submissions and publications.

**Please do not be sloppy, late, or lackadaisical about this, as it can potentially put our funding for you and for all other trainees at risk.**

### 3.8.3. Issues about authorship

It is best to discuss the scope and ownership of a project at the beginning; this includes who will be an author and in what order they will be listed. It is important to include all who have contributed in some non-trivial way to the research. The first author (or co-first authors) usually take primary responsibility for drafting the paper, and the mechanics of submitting it. All of the coauthors may contribute to the writing as appropriate, and all should review the paper prior to submission. The senior author (listed last) is usually the project's principal investigator. If problems arise over authorship, first raise them with the PI; if issues remain then considering asking your Academic Advisor, or Stanford's [Office of The Ombuds](#).

#### 1. Whom to acknowledge:

The NIH requires that each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as:

*Research reported in this publication was supported by the National Library of Medicine of the National Institutes of Health under Award Number T15LM007033. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.*

Anyone involved in the work described in a paper and not listed as an author should be included in the acknowledgments section, as should those who provided other financial support or gifts of equipment. The primary author of the paper should confer with all co-authors to make sure that all appropriate grant support is listed.

#### 2. Mailing costs:

The DBDS program will pay for regular mail charges, but not Express Mail or Federal Express costs, unless specifically approved by a member of the senior staff. Please take this constraint into consideration when working against a deadline for mailing an abstract or other publication.

## 3.9. MS degree

### 3.9.1. Curriculum

The MS curriculum is described in full detail in the [Stanford Bulletin](#). The curriculum consists of four main components:

1. Core DBDS classes
2. Electives from Computer Science, Statistics, Mathematics, and Engineering. The complete list of allowable courses is listed at [DBDS Electives](#).
3. Social and Ethical Issues. A complete list of allowable courses is listed at [Explore Courses](#) by entering "dbds::ethics". Note that MD's and current medical students are exempted from this requirement; replace this requirement with the equivalent number of Unrestricted Graduate Electives.
4. Unrestricted Graduate Electives. Any course at the level 100 or greater may count.

Note that there are additional rules in the [Stanford Bulletin](#) about the number of P/F courses, and the number of 100-199 courses that may be counted.

There is more on the DBDS website for [Coterminal MS](#) and [HCP MS](#) students.

### 3.9.2. Milestones

During their first quarter in the program, all MS degree students must submit their [Course Flowsheet](#) by degree to Student Services.

### 3.9.3. HCP MS Details

The HCP MS degree is designed primarily for the working professional. There are some special considerations for HCP students:

- Although many classes necessary for the degree are available online, some requirements may be fulfilled through implementation of an alternative plan to be approved by the program. Example:
  - Stats 200 was not offered remotely before Spring 2020 – suggested alternatives: MS&E 226 or EPI 259 and EPI 261
  - BIOMEDIN 212 requires special arrangements with the instructorStudents should consider the availability of courses online before requesting to switch from full-time to part-time, especially if this may interfere with their ability to satisfy the requirements of the degree.
- HCP students who live locally may attend their courses on campus.
- All HCP students are strongly encouraged to attend Monday Talks (in person or remotely), as they provide a critical opportunity to get to know others in the program.
- Students have up to five years to complete the program (rather than three years for the Academic MS degree).
- Typically, students enroll in one course per quarter. Not enrolling for any courses during a quarter (without taking a formal leave of absence) will result in the student's program being discontinued. Reinstatement requires a petition to Graduate Admissions - <https://gap.stanford.edu/handbooks/gap-handbook/chapter-5/subchapter-4/page-5-4-11#anchor-466>
- Research projects are optional; if interested, the student must make arrangements with program faculty.

**Requests to transfer from part-time (HCP) to full-time (Academic MS) are reviewed by the DBDS Exec on a case-by-case basis. Final decisions are at the DBDS Exec's discretion. Please note the following limitations** (for students enrolling in the HCP program starting Fall 2020):

- Students must complete a minimum of two (2) quarters in the part-time program excluding summer quarter or enrollment as a non-degree option student, before requesting to transfer to full-time. Therefore, the soonest the transfer can be discussed

and approved is during the first DBDS Exec meeting of the third quarter of the student in the HCP program.

- Students must complete a minimum of 10 units of letter-graded courses that meet requirements for the DBDS MS degree before commencing their first full-time (Academic MS) quarter
- GPA will be considered as part of the request
- Students can make a maximum of two (2) transfers during the program (e.g. transfer from part-time to full-time and back to part-time)

### **3.9.4. Academic MS research rotation and research paper (Practicum)**

All students in the Academic MS program should be engaged in biomedical data science-related research under the supervision of a DBDS Primary, Secondary, or Advising Faculty member. Officially, you are not required to do one-quarter research rotations, but you are welcome to do so. You should pick a lab by mutual agreement between you and the research supervisor. Please notify the DBDS Student Services Officer when you have done so.

Before graduating from the Academic MS program, you are required to write a research paper, sometimes called a research practicum. This paper should be publishable, although it is not required that it be submitted or published. It is required that this manuscript be reviewed and approved by two faculty members; typically, these would be the senior author of the manuscript who is your research supervisor, and one other Primary/Secondary/Advising DBDS Faculty. Please send this information to the Student Services Officer well in advance of your graduation so that it is not delayed.

If you transfer from the Academic MS program to the HCP MS program, this requirement no longer applies. However, if you did significant research while in the Academic MS program, we strongly encourage you to complete and publish it.

### **3.9.5. Funding Support for MS students**

We have funding through the NLM training grant for those who have postdoctoral status (MD, or PhD). You can apply for the post-doctoral MS before your doctoral degree has been awarded, but you cannot be placed on postdoctoral NLM funding until your doctoral degree has been conferred, so there may be problems if your graduation is delayed. Note that NLM training grant funds can only support US citizens or permanent residents. Others will need to consider alternative sources of funding.

For students enrolled for the MS degree who do not already have a PhD, MD, or similar doctoral degree, some information about aid and loans is available through <https://financialaid.stanford.edu/>

Some MS students find Research Assistantship support at Stanford by directly contacting professors. Coterminal MS students are eligible for RAships as well, after they have switched to the Graduate Tuition Group (typically after completing 180 units).

Many of the core and advising faculty in the DBDS program have research funds supporting RAships. Please contact the Student Services team for access to the google doc with updated

information regarding DBDS affiliated faculty lab projects. Some faculty are open to having an MS student on RAsip.

### **3.9.6. Terminal Graduate Registration and Part-Time Enrollment**

#### **1. Terminal Graduate Registration**

Students enrolled in master's programs with a required project (such as DBDS post-docs funded by the NLM training grant) should apply for [Terminal Graduate Registration Status](#) upon completion of all required courses and completion of 45 residency units at Stanford. You then enroll in BIOMEDIN 801.

#### **2. Graduate Petition for Part-Time Enrollment**

If you need only 3-7 units in the last quarter before qualifying to go TGR, or in the last quarter before graduation, discuss the "Graduate Petition for Part-Time Enrollment" with the Student Services Officer prior to the first day of the quarter.

If the petition is granted, you may enroll in 3-7 units. Co-terminal students with an active undergraduate degree program and international students are not eligible for this petition. Before registering at less than the regular full-tuition rate, consider the effects of that registration on your degree progress and on eligibility for financial aid and awards, visas, deferment of student loans, and residency requirements. Submit the form prior to the Preliminary Study List deadline (5 pm first day of classes) of the effective quarter.

### **3.10 PhD Degree**

#### **3.10.1. Curriculum**

The PhD curriculum is described in full detail in [Explore Degrees](#). The curriculum consists of five main components:

1. Core DBDS classes
2. Electives from Computer Science, Statistics, Mathematics, and Engineering. The complete list of allowable courses for this component appears at [DBDS Electives](#). Note: you can have no more than 9 units in courses below the 200 level.
3. Social and Ethical Issues. A complete list of allowable courses is [listed at Explore Courses by entering "dbds::ethics"](#). Note that MD's and current medical students are exempted from this requirement; replace this requirement with the equivalent number of DBDS related Graduate Electives.
4. Unrestricted graduate electives. Any courses at the level 100 or greater may count.
5. Biology/Medicine Electives

#### **3.10.2. Academic milestones overview**

An informal overview of the major milestones by year:

- Year 1: Take classes, do lab rotations, pick a lab, submit applications for outside funding.

- Year 2: Take classes, TA, do research, take the oral and written qualifying exams, submit applications for outside funding.
- Year 3: Finish up classes, TA, do research, start to establish your Doctoral Dissertation Reading Committee at the end of the third year, give Research-in-Progress talk, submit applications for outside funding.
- Year 4: Do research, finalize Doctoral Dissertation Reading Committee by mid-4<sup>th</sup> year and meet with them once.
- Year 5: Finish research, defend and submit Dissertation, graduate.

Summary of Milestones for each PhD cohort, after choosing a lab:

YEAR	MILESTONES	IDP Meeting (due 8/1)	Progress Report (due 12/1)	Dissertation Reading Committee Meeting
2	Quals (written & oral)	√	* √	
3	Research in Progress Talk	√	√	1x/yr **
4	Finalize Dissertation Reading Committee Members	√	√	1x/yr
5	Oral Defense	√	√	2x/yr***
5+	Oral Defense, if not earlier	√	√	2x/yr

\* 2nd year Progress Report - 1 quarter only

\*\* Research in Progress Talk counts as your dissertation reading committee in your 3rd year

\*\*\*Meet with Reading Committee twice in the 5<sup>th</sup> year. Oral Defense counts as one meeting.

See the subsequent sections for more information on the Milestones, Progress report, IDP etc.

### 3.10.3. Research rotations

Research rotations are critical for students in choosing their research lab or project. In addition, rotations broaden a student's research experience and familiarize students with ongoing research projects. Rotations are set up by mutual agreement between the student and the faculty member.

Please contact the Student Services team for access to the google doc with updated information regarding faculty who are interested in having DBDS PhD students in their lab for research rotations. Students should contact faculty directly to determine if there is a rotation spot available.

PhD students should do three research rotations, except for in extenuating circumstances. Rotations are typically one quarter in length, but the student can arrange shorter rotations, or



end early if the lab is not a good fit. Rotations longer than one quarter are discouraged, as the primary purpose of the rotation is to find a suitable thesis lab, not to obtain publication quality results. Students are strongly encouraged to make their lab choice by the end of spring quarter. Students **must** choose their lab and research advisor by the end of their fourth quarter in the program. Typically, this is the end of the summer quarter of first year. There is some advice here: [Choosing Rotations and a Thesis Lab | Incoming Students | Stanford Biosciences PhD Programs](#)

When you and a PI have reached a mutual agreement about you joining their lab, let DBDS Student Services know.

Please also review the information in the section below on setting up a doctoral dissertation reading committee with respect to the committee membership, and who can be a primary advisor.

### 3.10.4. Graduate Student Tracking System

Biosciences is now using a web-based system for tracking some important milestones. You enter information directly into that system. You can read more about it on [the GST page](#). It was designed to provide information about each student's academic progress, and to aid with the accomplishment of certain academic milestones in a Ph.D. career — lab rotations, qualifying examinations, and both thesis committee and Individual Development Plan (IDP) meetings.

### 3.10.5. Annual Progress Report

This annual progress report form is separate from the Biosciences IDP and is intended to give the DBDS department leadership and Student Services an update of student program progress, any concerns, and mentor/student communication. The Progress Report form will be sent to PhD students and their research advisor/s in order to set expectations between students and their research advisor(s) for the year. A link to the form can be found [here](#). It does not have to be very lengthy, a paragraph for each part of the form will suffice.

An annual meeting between research advisor/s and their advisees is required in order to discuss professional goals & review coursework, academic progress and research progress. This meeting will suffice to complete both the IDP form and the Progress Report, which are due at different times during the year. The Progress Report also helps to support research advisors when mentoring advisees on their research progress, and to keep their students on track for graduation.

Please see chart below to confirm when the Progress report is due, versus other annual milestones.

Summary of Milestones for each PhD cohort, after choosing a lab:

YEAR	MILESTONES	IDP Meeting (due 8/1)	Progress Report (due 12/1)	Dissertation Reading Committee Meeting
2	Quals (written & oral)	√	√ *	



3	Research in Progress Talk	√	√	1x/yr **
4	Establish Dissertation Reading Committee	√	√	1x/yr
5	Oral Defense	√	√	2x/yr***
5+	Oral Defense, if not earlier	√	√	2x/yr

\* 2nd year Progress Report - 1 quarter only

\*\* Research in Progress Talk counts as your dissertation reading committee in your 3rd year. You should invite potential dissertation committee members to this talk.

\*\*\*Meet with Reading Committee twice in the 5<sup>th</sup> year. Oral Defense counts as one meeting.

See the subsequent sections for more information on the Milestones, Progress report, IDP etc.

Please make sure to enter your meeting dates in the [Graduate Student Tracking System](#).

### 3.10.6. Individual Development Plan (IDP)

The IDP is an annual process to review your professional development with your research advisor. It is kept confidential between you and your research advisor. It is important and required for all PhD students. Failure to comply with IDP requirements will negatively impact Stanford's ability to receive NIH funding, and create a hold on your registration. The IDP is separate from any DBDS progress report.

The details, including deadlines and forms are at the [Biosciences Individual Development Plan page](#).

When you have completed your IDP for a given year, please record that you have done so using the [Graduate Student Tracking System](#). The forms and the content of your discussions remain private.

### 3.10.7. Funding support and finances

Thanks to strategic support from the School of Medicine and Stanford Biosciences, as well as generous support through training grants from the National Library of Medicine, and various fellowships, assistantships, endowment and philanthropy, and faculty funds, we aim to fully fund our PhD students for 4 years. We do not base the funding plan for incoming PhD students on Research Assistantships, as such assistantships restrict a student to a particular faculty member and lab. Our training grants from the National Institutes of Health cover only US Citizens or permanent residents, so the funding plan for international students typically depends on external fellowship support (including fellowships from their government which guarantees their ability to support their entire studies).

#### 3.10.7.1. Applying for outside funding:

All DBDS PhD students are admitted with a funding plan in place. However, you are required to apply to internal and external funding for which you are eligible. Receiving such funding

provides validation of your research ideas, and also allows us to support more students. Please contact student services for the link to the Funding Opportunities google sheet.

**NSF Graduate Research Fellowship:** This section describes the process for applying for NSF Graduate Research fellowship program, a three-year graduate fellowship aimed at promoting diversity and supporting excellence in science and engineering.

DBDS strongly encourages you to apply to the NSF GRFP. The fellowship provides a \$37,000 annual stipend per year plus \$16,000 cost-of-education allowance, which Stanford will supplement up to standard stipend levels. The NSF is looking to fund outstanding graduate students who are pursuing research-based doctoral degrees in STEM. Fellows are expected to contribute significantly to research, teaching, and innovations in STEM (be a well-rounded scientific ambassador). Critically, **there is no obligation to carry out the proposed research if you get the fellowship**. Achieving funding is also a major way to contribute to ensuring there are spots in our program for future deserving students!

The fellowship is prestigious and competitive – those planning to apply should devote sincere effort to their application and get started as early as possible. The Grant Writing Academy and Stanford Biosciences are here to help students through the process (<https://grantwriting.stanford.edu/nsf-grfp/>). We encourage you to take advantage of these resources and solicit lots of help and feedback with your application. Faculty in the Department of Biomedical Data Science are here to help. Currently, Professor Aaron Newman is our department representative for the NSF GRFP and can provide you with support, resources, and feedback to assist you in applying.

#### Additional information and next steps:

The **NSF application deadlines** for all of the various STEM disciplines (such as Life Sciences, Computer and Information Science and Engineering) are in mid-October. Specific deadlines for each STEM discipline can be reviewed in detail [here](#).

Life Sciences – October 16, 2024

Computer and Information Science and Engineering – October 18, 2024

You are encouraged to join the [Stanford Biosciences Student Association's Peer Mentoring Program](#), a student run program that matches first and second year scholars with former NSF GRFP Awardees or Honorable Mentions for grant writing mentorship.

Only 1st and 2nd year graduate students can apply. You can only apply once.

Details about NSF review criteria can be found below.

Please let Dr. Aaron Newman ([amnewman@stanford.edu](mailto:amnewman@stanford.edu)) know at your earliest opportunity if you plan to apply.

Please also send Dr. Newman the name and email address of your Fall Rotation Advisor.

Additional information about GWA resources can be found here:

<https://grantwriting.stanford.edu/nsf-grfp/>

The key points of eligibility are the following:

- (1) Must be a US citizen, national, or permanent resident
- (2) No degree previously earned higher than bachelor's or BS/MS joint unless a 2 year gap
- (3) In either your first or second year of graduate school
- (4) Have not applied before as a graduate student

**NRSA Fellowships:** This section describes the process for applying for NRSA fellowships. You do not need to apply for NRSA F31 funding if:

- you are an international student, or
- if you have both SGF and NSF funding, or
- if you have SIGF, HHMI or other funding that will carry you through the 5th year.

Details and Timing:

- Please let DBDS Admin know about your plans early. The process is a bit complicated and you will need help.
- The F31 program is described here:  
<https://researchtraining.nih.gov/programs/fellowships/F31>.
- You should apply sometime between the summer of your second year and the summer of your third year. You should start thinking about this even earlier: the skills you learn in BIOMEDIN 212 about proposal writing and your written Quals are both valuable in constructing a strong NRSA application.
- You must take a 3-hour class at Stanford, "NRSA F Series Computer Lab Session," before you apply. The fellowship application requires a lot of forms, so you should take the class several months in advance of applying, perhaps even for an earlier cycle. You register for the class using this website:  
<https://doresearch.stanford.edu/training/national-institutes-health-nih>
- Grant applications are submitted through Stanford's Research Management Group (RMG), which requires submission at least 5 full working days before the NIH deadline.
- You must ask for a start date in your grant application; these depend on the cycle and are listed in the table. Generally, **we recommend that you apply for Cycle III.**

What you should do	Cycle II	Cycle III
Take required class	June/early July or earlier!	Oct/early Nov or earlier!
Application due at Stanford RMG	August 1st	December 1st

Application due at NIH	August 8th	December 8th
Start date if awarded	Ask for July 1st	Ask for Sept 1st

### **3.10.7.2. Terminal graduate registration (TGR):**

When PhD students have completed the University's residency requirement, been admitted to candidacy, completed 135 units of coursework, and submitted the Doctoral Dissertation Reading Committee form, they should apply for [Terminal Graduate Registration Status](#). TGR greatly reduces the tuition rate. Typically, you are eligible for TGR status in the Spring of your fourth year. When enrolling under TGR status, a student may only enroll in only 1-3 units of non-required coursework (with PI's knowledge), in addition to the zero-unit TGR course (BIOMEDIN 802). It is the student's responsibility to be aware of when he/she is eligible for TGR. To be considered on TGR status, the student must submit the TGR form to the Registrar prior to the beginning of the quarter for which the request is being made. If your fellowship requires that you be enrolled in one or more units even during the course of an internship, you should sign up for Curricular Practical Training (BIOMEDIN 390A, BIOMEDIN 390B, BIOMEDIN 390C).

### **3.10.7.3. Graduate Petition for Part-Time Enrolment:**

If you need only 3-7 units in the last quarter before qualifying to go TGR, or in the last quarter before graduation, discuss the "Graduate Petition for Part-Time Enrollment" with the Student Services Officer prior to the first day of the quarter.

If the petition is granted, you may enroll in 3-7 units. Before registering at less than the regular full-tuition rate, consider the effects of that registration on your degree progress and on eligibility for financial aid and awards, visas, deferment of student loans, and residency requirements. Submit the form prior to the Preliminary Study List deadline (5 pm first day of classes) of the effective quarter.

### **3.10.8. Qualifying Examination (Quals)**

The goal of the Qualifying Examination is to evaluate the suitability of a student to advance to PhD candidacy. The examination consists of two components: (1) the Oral content exam, and (2) the written research proposal.

The oral content exam tests the student's broad foundation in the field and the ability to synthesize and communicate that foundational knowledge. It is the student's responsibility to build this foundation through core coursework, required technical electives, attending seminars, engagement with faculty and peers, research activities, and independent study. The DBDS core curriculum courses are designed to contribute to such a solid and broad foundation. Preparing for the qualifying exam will take significant time, typically during the 2<sup>nd</sup> year of the PhD program. You should consider setting up study groups to prepare.

The instructions, process, and content outlines for the oral qualifying exam will be sent to all participating students in the fall quarter of their 2<sup>nd</sup> year.

The written qualifying exam is a research proposal based on the work you have conducted under your research supervisor. The proposal should be an NIH-style grant proposal in R01 format, including title, abstract, specific aims, details on "Significance, Innovation, Approach", environment (advisor, others involved) and references. The instructions and process timeline for the written qualifying exam will be sent to all participating students in the winter quarter of their 2<sup>nd</sup> year.

The possible outcomes of a qualifying exam are:

- Qualifying Examination Overall PASS (both elements): Student is invited to advance to candidacy.
- Oral Qualifying Exam FAIL: Student may be offered a partial exam (in focused areas of weakness) or complete retake of exam within 2-4 months.
- Written Research Proposal FAIL: Student may resubmit Research Proposal within 1-2 months.

Students who either fail or do not complete either component a second time will have their performance reviewed by the DBDS Graduate Program Executive Committee for the suitability of continuing in the graduate program.

After passing the Qualifying Exam, students must submit the required [Application for Candidacy for Doctoral Degree](#) form to DBDS Student Services.

- [4.6.1 Doctoral Degrees, Candidacy: Policy | Graduate Academic Policies and Procedures](#)

### **3.10.9. Research in Progress Talk**

The Research in Progress Talk is a work-in-progress talk that you give during your third year. You should plan on it roughly 6 to 9 months after the Quals exam. The purpose is to

show preliminary results, modifications to the specific aims, and to get feedback on your methodological approach and innovations. It will also give you some insight into what will be expected in your thesis defense, as the faculty will ask tough questions. The Research in Progress Talk counts as one of the required committee meetings.

The talk lasts 90 minutes in total. The first 45 minutes is in public, followed by a private session for 45 minutes with your committee. It is important that the student invite those faculty members whom he or she is planning to have on the Dissertation Reading Committee. Here is further advice on preparing your Research in Progress talk: [Research in Progress Talk Guidelines](#)

Please send copies of the slides ahead of time to your committee, and supply them with paper copies at the talk. Make sure your slides have slide numbers for easy reference.

### **3.10.10. Setting your Doctoral Dissertation Reading Committee**

Each PhD candidate is required to establish a doctoral dissertation reading committee for the doctoral dissertation by late 3rd year-early 4th year. Students should consult frequently with all members of the committee about the direction and progress of the dissertation research and are required to meet annually with their whole committee. Students must have at least three faculty members:

- the principal dissertation advisor,
- two other readers serve on their Doctoral Dissertation Reading Committee, to read and certify their dissertation.

At least two members must be on the Stanford Academic Council. If the faculty member with whom you work most closely is not on the Academic Council, then you will need to add another advisor who is. You are responsible for checking this, and for making sure that everyone on the committee understands their role.

Please note: the Dissertation Reading Committee does not have to include the exact same faculty as the Oral Defense committee; however, often these two committees have the same members. Each operates separately and it is up to you to manage the expectations for each committee.

The Doctoral Dissertation Reading Committee Form should be completed and filed with DBDS Student Services before scheduling a University oral examination that is a defense of the dissertation. On occasion, the department chair may approve the appointment of a reader who is not on the Academic Council, if that person is particularly well-qualified to consult on the dissertation topic and holds a Ph.D. or equivalent foreign degree. Approval is requested on a Petition for Doctoral Committee Form.

One doctoral dissertation reading committee member, who must be a current member of the Academic Council (typically the principal dissertation advisor), reads the dissertation in its final form and certifies on the [Certificate of Final Reading](#) that department (DBDS Program) and university specifications have been met. This is the “final signature”.

Please see the milestones chart in section 3.10.2 on the timing and expectations for meeting with your Dissertation Reading committee. Note that students must meet with the reading committee 2x per year in their fifth year and beyond.

### **3.10.11. University Oral Examination (Dissertation Defense)**

You are required to defend your thesis research in a public oral examination with a committee. The University oral examination committee has at least five members: at least four examiners (including your primary advisor) and a University chair. To be clear: the oral examination committee does not necessarily need to have the same members as the dissertation reading committee, although the same faculty can serve on both committees.

You are responsible for following Stanford policies, listed at:

- [Graduate Degrees | Stanford University](#)
- [4.7.1 Doctoral Degrees, University Oral Examinations & Committees: Policy | Graduate Academic Policies and Procedures](#)
- [4.7.2 Doctoral Degrees, University Oral Examinations & Committees: Implementation | Graduate Academic Policies and Procedures](#)

#### **1. Prepare the dissertation draft:**

The primary advisor should read and approve your draft dissertation before it is sent to the rest of the oral examination committee. All of the oral exam committee members should have an opportunity to read and provide comments on the draft. When you send your draft final thesis to the oral defense committee for their input (at least 3 weeks in advance), also send the final draft version to your dissertation reading committee for their input as well. This should happen at least THREE WEEKS (not days or hours) before the oral examination. All of the oral exam committee and reading committee members must be satisfied with your draft before you proceed to the defense.

It is a courtesy to provide your orals committee chair with a copy of your dissertation and the Orals Guidelines, and to offer to meet with them before the event.

#### **2. Structure and content of the dissertation:**

Its acceptability is judged by your advisor and your committee. In general, you should write a complete document (text, figures, tables, references) that makes a scholarly case for the problem being addressed, includes relevant previous work, and presents your methods and results in a logical way.

#### **3. Schedule the exam:**

Start at least two months before your desired date. Plan on one hour for a public presentation, including time for questions from the audience, followed by up to 90 minutes of closed session with your committee, leading to a vote. This means that committee members should set aside 2-1/2 to 3 hours.

#### **4. Find a chair:**

When a date and time for the oral exam is identified, then work with the DBDS Student Services Officer to identify the exam committee chair. The chair of the examining committee may not share a department or joint appointment with your primary advisor, nor may the chair of the examining committee be on the DBDS Graduate Program Executive Committee.

Once the full committee is chosen, fill out the University-mandated paperwork and provide the form along with your title and abstract to Student Services Officer **at least three weeks prior to the Defense.**

5. Meet with the oral defense committee:

Make sure that you meet with all members of the oral defense committee (and optionally, the chair) as needed in the months leading up to the exam. Be sure that they understand what you are doing, and agree that what you are defending is worthy of a Stanford PhD.

6. Plan your presentation:

Dissertation defenses should be serious scientific presentations of your dissertation research.

Please send copies of the slides ahead of time to your committee, and provide them with paper copies at the talk. Make sure your slides have slide numbers for easy reference.

7. After the exam:

You should work with your primary advisor on a plan to submit the final dissertation, which may require some revision as a result of the exam.

Under the new system, there is no Final Talk. The Department of Biomedical Data Science holds a special event to celebrate all graduates during graduation weekend. Your PI and lab may also schedule a celebration.

### **3.10.12. Old Thesis Proposal Defense (entered PhD program before July 1, 2018)**

If you entered under the old system, you may follow these rules or choose the new rules with just the Thesis Defense, described above. Under the old system, you present a Thesis Proposal Defense, and then about 6-9 months later, you give your Final Talk. The rest of this section contains the old rules.

#### **3.10.12.1. Thesis Proposal Defense (University Oral Examination)**

The DBDS Thesis Proposal Defense is the University Oral Examination and represents the last major milestone for completion of the PhD degree. In most other departments, the final defense is the final talk. For DBDS, this is split into the Thesis Proposal Defense (occurring earlier than final defenses), and the Final Talk.

Stanford's requirements are listed at [Graduate Degrees | Stanford University](#) and [4.7.1](#)



[Doctoral Degrees, University Oral Examinations & Committees: Policy | Graduate Academic Policies and Procedures](#)

The University oral examination committee has at least five members: at least four examiners and a University chair.

1. Schedule the exam:

Start at least two months before your desired date. Plan on one hour for a public presentation, including time for questions from the audience, followed by up to 90 minutes of closed session with your committee, leading to a vote. This means that committee members should set aside 2-1/2 to 3 hours.

2. Book a classroom in Edwards/Alway:

[View the list of rooms and their availability:](#)

Once you find an available slot that suits your needs, fill out this form and wait for an email confirmation from MedScheduler regarding your booking.

Please note: Anyone can use the forms to book a classroom---there is no need for staff to make the booking on your behalf.

3. Find a chair:

When a date and time for the oral exam is identified, then search for the exam committee chair. The Chair needs to be someone who's not from your PI's department. You could choose anyone who is from another department that is represented on the committee by one of the examiners other than your thesis advisor. The chair must be a member of the Stanford Academic Council. Once the full committee is chosen, fill out the University mandated paperwork and provide the form along with your title and abstract to Student Services Officer at least two-three weeks prior to the Defense.

4. Meet with the committee:

Make sure that you meet with all members of the committee (and optionally, the chair) as needed in the months leading up to the exam. Be sure that they understand what you are doing, agree with your thesis statement and evaluation plan, and believe that what you are proposing is worthy of a Stanford PhD.

5. Plan your presentation:

Develop your oral defense in consultation with your thesis advisor. Decide in advance what points you need to make, what background needs to be provided to the audience, and what you can leave out or save for questions.

Practice the talk. Go over the slides with your advisor. Avoid glibness, or excessive informality; this is one time when a presentation needs to be rather formal. You are trying to demonstrate that you are already master of a field and are striking out to break new and important ground of some kind. Even though you will have shared your proposal with your

committee and often with other members of the audience, do not assume that everyone will have digested it in detail.

Dissertation defenses should be serious scientific presentations of a student's dissertation research, similar to a postdoc interview talk, rather than a talk aimed at a lay audience. State your goals clearly; make sure people understand the motivation for what you are doing, as well as the technical details. The defense should close with a summary of what remains to be done before your dissertation will be complete, including a detailed time line of tasks, milestones, and their anticipated completion dates. Students should limit acknowledgements to one slide and a couple of minutes, saving more extended acknowledgements of friends and family for the Final Talk.

Please send copies of the slides ahead of time to your committee, and supply them with paper copies at the talk. Make sure your slides have slide numbers for easy reference.

#### 6. Prepare the written proposal:

The proposal document is supposed to be a complete and compelling document that presents the problem, reviews the literature, and then describes your plan for completion. It should be polished and have a full set of references, figures etc. It is NOT a draft dissertation but should be a compelling and complete proposal for work to be done. Although this document may yield significant fragments that end up in the final dissertation, it should present a defensible proposal. Its acceptability is judged by the oral defense committee, using their judgment. In general, you should write a complete document (text, figures, tables, complete references) that makes a scholarly case for the problem being addressed, relevant previous work, and presents a scientifically logical plan for how it will be approached. One possible outline would be:

- Ch. 1: Introduce the problem you are addressing, why it is important, why it may be solvable, and what you consider to be the key things you will investigate and try to make contributions to.
- Ch. 2: Deep, critical and scholarly literature review of the relevant areas.
- Ch. 3: Preliminary work that has been completed. You can use papers that you have written (as first author), each in its own chapter. The key thing there is that the writing should be your own, and so your full draft is better than something that was heavily edited by co-authors.
- Ch. 4: Proposed work to be done in detail with validation, possible problems, and backup plans, along with a schedule/timeline.
- Ch. 5: Summary of anticipated contributions to biomedicine and biomedical data science.

The document should be fully referenced, with figures, tables, complete sentences, and no sections that are empty. There is no length requirement (or limit) but most proposals are between 30-50 1.5-spaced typed pages.

The primary advisor should read and approve the proposal document before it is sent to the committee. This is to ensure that the student and the advisor have a clear and shared understanding of the proposed work plan, and that it has been captured by the student in the written proposal document.

In the case where one or more committee members is not satisfied by the written proposal, there are several options:

- The oral defense can be postponed, but this would be an extraordinary event based on conversations with the advisor and program director, and would have to be considered well in-advance of the scheduled date of the oral defense.
- The oral defense can go on, and if the oral defense and Q&A is an otherwise passing performance, the committee can either: (1) provide informal feedback about how to improve the document, or (2) grant a "conditional pass" conditioned on submission within a designated time of an acceptable proposal document.

Work out an arrangement with your thesis advisor to assure that he or she has read all chapters of your proposal and has agreed that they are adequate no later than **THREE WEEKS PRIOR TO YOUR EXAM**. If your advisor has not seen drafts of all chapters by this time, and agreed that everything is on track, it is his or her responsibility to notify Student Services Officer that the scheduled exam should be cancelled; you will need to reschedule it at a time when the 3-week window is likely to be achievable.

Incorporate comments from your advisor and generate a final thesis proposal for delivery to your committee no later than **TWO WEEKS PRIOR TO YOUR EXAM**. This provides your committee with enough time to have a reasonable chance of reading the document prior to your oral defense. Failure to meet this deadline will also trigger a cancellation of the oral exam by your thesis advisor so that the exam can be rescheduled for a time when the committee will have had adequate time to read the proposal.

It is a courtesy to provide your orals committee chair with a copy of the proposal and the Orals Guidelines, and to offer to meet with him/her before the event. They will generally not require that you do this, but make the offer. Also, be sure they understand that you will be defending a proposal and not a completed dissertation.

The University Oral Examination form should be submitted to the Student Services Officer at least three weeks prior to the examination date.

#### 7. Thesis Proposal Defense Oral Presentation Guidelines

1. What is the scientific problem in the biological/medical domain that motivated your research?
2. Why is that problem important to solve?

3. What other research has been previously attempted to solve the problem described in Question 2 above?
4. What are the limitations of the existing approaches described in Question 4 above?
5. What are your hypotheses about how to overcome the limitations in Step 5, and how well do you predict it will resolve the problems described in Step 2?
6. In a few minutes describe the underlying computational approach that you have taken to address a biological/ medical data analysis problem.
7. Describe in depth the details of your research aimed at the level of expertise of your committee.
8. How will you show that the research described in Question 7 resolves the problems described in Question 2?
9. How do you propose to complete your research and evaluation during the time remaining before you graduate?
10. What are the contributions to Biomedical Data Science and what are the contributions to the biological/medical domain?

#### **3.10.12.2. Final talk:**

The Final Talk is a summary of the work accomplished on the PhD research, and should occur when the student is still matriculated. The final talk should primarily emphasize the research that has been completed since your thesis proposal defense presentation. It lasts about an hour, including time for questions. Extended acknowledgements of family and friends are appropriate in this celebratory venue.

The student's Final Talk must be scheduled during the regular academic quarter, and may not be scheduled during finals week or during the break between quarters. There is no mandatory attendance by the committee (although this is encouraged) and therefore there should be no particularly onerous scheduling constraints.

#### **3.10.13. Submitting your dissertation**

University regulations specify the composition of the oral examination committee and the format of the dissertation defense. See the [Registrar's Dissertation and Thesis Submission page](#).

A thesis draft should be submitted to your oral examination committee four weeks before the Registrar's deposit deadline. The oral examination committee should have no less than two additional weeks to read the final dissertation before the deadline for signing off and deposit with the Registrar's office.

Once your thesis has been submitted to the Registrar, the Stanford University libraries will provide electronic access through the SearchWorks Web catalog in the ProQuest Digital Database. Bound copies of dissertations can be purchased through the HF Group Thesis on Demand in contract with the University to provide the standard red binding. Please check the Registrar's website for current information and instructions.

### **3.10.14. Getting an MS while in the PhD program**

#### **3.10.14.1. Getting an MS from DBDS:**

There is no tradition in the Biosciences of routinely offering MS degrees on the way to a PhD, although our program has awarded them in the past under special circumstances at the request of the student. The DBDS Graduate Program Executive Committee will consider requests to be awarded an MS degree. Upon completion of MS coursework requirements, students must submit a Master's Program Proposal, submit a [Graduate Authorization Petition](#) (fee=\$125), and if approved apply for graduation, selecting the MS (not PhD) program.

Note that there are *major* financial consequences of PhD students obtaining a *second* MS degree along the way. Typically, this would occur if you request the DBDS MS, and then add an MS in statistics or CS. Generally, you shouldn't do this; please discuss with the Student Services at the earliest opportunity.

#### **3.10.14.2. Getting an MS from another program:**

Some students choose to pursue an MS in another department, typically Statistics or CS, while they are a PhD student in DBDS. Note that you should only pursue a MS in another department if you have not received an MS from DBDS. To complete a MS in another department students may use courses that fulfill requirements for both programs towards their MS degree and replace those courses with unrestricted electives. For example: STATS 200 is a DBDS requirement but also fulfills a requirement for the STATS MS. Students pursuing a STATS MS would take STATS 200 for their STATS MS and replace those units with unrestricted electives to meet the DBDS requirement. Students need to petition the DBDS Executive Committee to add the outside MS and should do this in advance of applying to the other department. This requires planning ahead. Please submit to the Exec:

1. A cover letter from you about why this is academically a good idea for you,
2. Your DBDS flowsheet showing how you fit in coursework from both programs,
3. A letter of support from your PI. This should indicate that they are aware your MS could lengthen the time to degree, and that they may need to pay the tuition differential between regular full-time tuition and TGR tuition if you take longer than  
Spring quarter of 4th year to reach TGR. This can vary depending on what fellowships and scholarships support you; please involve DBDS Student Services early in your planning.

### **3.10.15. Applying to the PhD program while enrolled in the MS program**

There have been cases where a student already enrolled in the DBDS Academic MS program has expressed an interest in changing to the PhD program. We want to emphasize that the MS and PhD programs are separate pathways, and MS should not be viewed as an on-ramp to PhD. If an MS student wishes to apply for PhD, they will need to apply through the normal [Biosciences PhD application](#) (typically with an early December deadline) and be reviewed along with all other applicants.

DBDS MS applicants will be evaluated with the same rigor as other applicants to the PhD program, and (if admitted) will be subject to the expectations, curriculum and other requirements of the PhD program.

## **4. Travel**

The official Stanford travel rules and policies for students are described on the Fingate webpage: [Fingate - When Students Travel for Stanford](#).

Once you are affiliated with a lab, you should expect some travel support from that lab, particularly to present research results from that lab, so discuss this with your PI. DBDS can also provide financial support for conference travel for our PhD and full-time MS students, including co-terminal students engaged in research. Funding is obviously limited and priority is given to those who are invited to present or have a paper or a poster accepted, as well as for participation in strategic activities such as travel to meetings where we want to have Stanford DBDS representation (for example, AMIA, SACNAS, ABRCMS, and the NLM conference). As a general guideline, we have budgeted about \$1,300 per student.

### **4.1. NLM Travel Funding and conference**

Our NLM training grants provide a limited amount of travel support for students funded through those grants (including to the NLM meeting). A year for the NLM Training Grant runs July 1-June 30. Travel dollars must be spent during the grant year and cannot carry over.

NLM-supported students *must* attend the annual NLM meeting, usually held in early June. We will fund this travel. The NLM conference includes poster sessions and research presentations, and having rigorous, compelling presentations by our trainees helps confirm and strengthen Stanford's reputation as well as your visibility in the national informatics community, and potentially benefits future funding opportunities.

## **4.2. How to request support for travel**

You need to request support for travel ahead of time, using the procedure described below. If you first travel, and then request payment for the travel, your request will be denied.

Co-terminal students: if you had a presentation or poster accepted, let us know; we may be able to support your travel.

Procedure:

1. Submit a [Travel Request Form](#) to DBDS Student Services. You should do this ahead of time (weeks to months, not days). Failure to submit the travel request form **before** the travel will mean that the student is responsible for the entire cost of the trip.
2. Submit a [Student Certificate for Authorized Expense](#) form so that the travel reimbursement will not be considered taxable income to the student.

## **4.3. How to make travel arrangements**

Students are responsible for making their own reservations for approved travel to conferences. (DBDS Student Services will make the arrangements for the annual NLM Informatics Training Conference.) Use Egencia through [Stanford Travel's Online Booking Tool](#). All students are expected to arrange for the lowest, restricted fare, using a US air carrier under the Fly America Act. Tickets can be purchased with the DBDS Travel card or the student's personal credit card. If the student uses a personal credit card reimbursement will be issued to the student upon completion of the travel. **Travel insurance and seat upgrades are not covered by DBDS travel funds.**

Students should complete the required travel request forms and certification as well as registration forms for meetings well in advance, and attempt to qualify for early registration discounts whenever possible. Normally only the Early Bird registration amount will be reimbursed. The registration fee, if it is an approved expense, is often charged directly to the grant supporting the travel and therefore is not a liability to the student. Membership fees will be reimbursed if required for an early registration discount.

It is also the student's responsibility to arrange for lodging at most conferences (except the NLM conference). Again, frugality is encouraged, both because there is a maximum per diem that the University will pay for living expenses away from Stanford, and because the ability of other students to travel in the future will depend on each student working to keep travel costs low. Students should ordinarily stay two to a room, and should not expect reimbursement for items such as dry cleaning, room service, telephone calls, payper-view movies, and other sorts of entertainment. Students should carefully consider if a car rental is really necessary. Since the travel policies can be confusing, please ask the Student Services Officer for clarification.

If you plan other trips around business travel please check with Student Services in advance of your booking to discuss the potential cost adjustment. Subsequent changes could result in you being responsible for change fees.

If there is a problem with the travel itinerary such as cancelled flights, fees for changing dates or times of travel, or change of date of the conference, you must contact the Student Services Officer or your academic advisor to get guidance about changing the flights and/or hotel and still maintain the requirements of the travel guidelines. Failure to get approval for these types of changes may mean that you will be responsible for the expenses.

#### ***4.4. Receipts***

**Please save all original receipts!** It is almost impossible to reimburse you if we do not have the original receipts of all expenses (food, lodging, registration, etc). Yes, please keep your receipts for purchases under \$25. When purchasing the airline ticket online, the student **MUST** provide proof of payment for the ticket. If the receipt from the vendor does not clearly state how the ticket was paid for, the student needs to provide a copy of the credit card statement for proof of payment. Travel and Reimbursement have strict rules about reimbursements and they will not reimburse a student unless they have the required back up paperwork. If a group of students are eating together, it is preferred that each student receives his or her own bill or that one student pays the entire bill. Each student's name should be written on the back of the receipt. This will not be counted against the student's overall travel budget if one student pays for the whole bill for 8 students, for example. Students are encouraged to take turns at each meal, however, when paying for the entire bill. We do not reimburse for alcoholic beverages.

#### ***4.5. Reimbursement after you travel***

Submit to DBDS Student Services:

1. Spreadsheet of daily costs, including amounts
2. Electronic or print of airline receipt, including proof that you paid for it (Copy of credit card statement, Expedia receipt, etc., showing the amount with your name and method of payment.)
3. Boarding passes from the airline (to be revisited, this is a bit dated)
4. Registration receipt, including proof that you paid for it
5. Lodging receipt
6. All original receipts for other purchases
7. Program of the conference

It takes 2 weeks for Stanford Financials to issue the reimbursement deposit. Students should enroll in direct deposit through [Axess](#).



You may be reimbursed for the registration fee as soon as it is paid (prior to travel) and you submit the appropriate documentation. You may not be reimbursed for the other expenses until your return from the trip. Submit all documentation promptly. If submission is completed more than 60 days after travel, the reimbursement is taxable income.

#### **4.6. Local Travel**

Stanford policy is that conference or other travel to San Francisco, San Jose or other local cities less than 50 miles from Stanford does not qualify for overnight stay or for reimbursable meals. Students may be reimbursed for mileage and parking or train fare with a receipt. Consult with the Student Services Officer before you travel if you have questions about reimbursement policy. We are not able to reimburse students for gas mileage to the annual DBDS retreat. We encourage carpooling.

#### **4.7. Foreign travel**

Contact DBDS Student Services. In most cases, permission is given if the student purchases the airfare from an approved American carrier or their foreign partner. Refer to the Fly America Alliances Policy before booking a flight.

### **5. Time away**

#### **5.1. Leave of absence**

The leave of absence policy is described in [5.3.1 Leaves of Absence: Policy | Graduate Academic Policies and Procedures](#)

Please note that it is the student's responsibility to review Vaden Health and [Cardinal Care Insurance policies](#) during a leave of absence. Be sure to contact Vaden's Insurance and Referral Office for guidance about coverage in advance, if at all possible. Current policies from the Vaden Health website (as of August 2024) are:

- A student who is granted a Leave of Absence in Autumn for which the effective date of the leave is prior to the first day of class will not be charged tuition or any associated fees for the quarter. Upon reversal of the tuition, the student's eligibility for enrollment in Cardinal Care will be cancelled retroactive to September 1. (The student's eligibility for enrollment in Cardinal Care will resume when they return and tuition is reinstated.)
- A student who is granted a Leave of Absence in Autumn for which the effective date of the leave is on or after the first day of class but before the term withdrawal deadline will be charged (prorated) tuition and associated fees for the quarter. If enrolled in Cardinal Care, the student will remain enrolled through the end of the plan year (August 31) and applicable fees will apply.
- A student who is enrolled in Cardinal Care as of Autumn quarter, and who is granted a Leave of Absence for a subsequent quarter (i.e., Winter, Spring, or

Summer) will remain enrolled in and covered by Cardinal Care through the end of the plan year (August 31) and applicable fees (charged Winter and Spring quarters only) will apply.

- A student whose initial quarter of entry is Winter or Spring, and who is subsequently granted a Leave of Absence, will be subject to the same guiding principles as a student who enters in Autumn, i.e., if the effective date of the leave is prior to the first day of class, tuition and any associated fees for the quarter will be reversed. Upon reversal of the tuition, the student's eligibility for enrollment in Cardinal Care will be cancelled retroactive to the start of the applicable coverage period (December 1 for Winter entry students and April 1 for Spring entry students). If the effective date of the leave is on or after the first day of class but before the respective term withdrawal deadline, the student will be charged (prorated) tuition and associated fees for the quarter. If enrolled in Cardinal Care, the student will remain enrolled through the end of the plan year (August 31) and applicable fees will apply.

These policies are subject to change each year, so we highly recommend that you go directly to the Vaden Health website for the latest information.

## **5.2. Family leave**

The pregnancy, childbirth, and adoption policy is described in [5.9.1 Pregnancy, Childbirth and Adoption: Policy | Graduate Academic Policies and Procedures](#)

## **5.3. Internships**

Internships can be a great learning opportunity, but also can cause delays in your research or potential conflicts of interest. Note that there are some time constraints, so you need to plan ahead.

- Internships for PhD students are recommended during the 3rd and/or 4th year. In general, the DBDS Graduate Program Executive Committee has a very strong preference that internships happen after you pass the Qualifying Exam, in order to ensure that you pass the Exam by end of second year, and to ensure that you have sufficient scientific knowledge and maturity to get the most out of your internship.
- Internships for MS students are highly encouraged during the summer following the first year.
- Career Resources can be found on the Stanford School of Medicine [BioSci Careers](#) website.
- Talk to your research and academic advisors to see if an internship makes sense given your status in the program. Also consider what period of time and its relationship to your DBDS milestones to minimize delays in your progress.

- While internships should be related to Biomedical Data Science, make sure that the specific area of proposed internship research is distinct from your Stanford research, so that there are no intellectual property issues, such as who owns your work product and whether it is publishable. This issue can lead to very large problems. The topic of the internship project should be reviewed by your primary research advisor, who will be able to evaluate for potential overlap. Ask your research advisor to send an email to the DBDS student services officer supporting your plan at least 1 full quarter before the start of the internship. This is important to getting approval from your funding source.
- Notify the DBDS Student Services Officer well in advance your plans.
- If you are on an NIH training grant, you will have to go off the grant for the time you are away, and permission will need to be obtained in advance from the NLM or NIH. This may take more than 1 quarter, so best to ask for permission with the student services officer ASAP. The NLM allows this for only one summer during your degree program. You might be eligible to extend your NLM support for one extra quarter if you do an internship, with prior approval.
- If you are supported on any other type of fellowship or grant, such as the NSF, SGF, NDSEG, etc., you need to verify the rules for internships.
- You cannot receive payment from the internship and your Stanford sources for the same time period. You are taking a break from full-time registration in the DBDS program and will not be funded by the DBDS program while participating in a fulltime internship. Internships may affect your University benefits, such as health insurance and Vaden services. International students: see the next section.
- If your proposed internship is not during summer quarter, then you need to make special arrangements. Please see the section about [taking a leave of absence](#).

### **5.3.1. Special Notes for International Students**

International students with internships in the US need to sign up for Curricular Practical Training (BIOMEDIN 390 A, B or C) and receive authorization through Bechtel International Center to maintain their visa status. Carefully read and follow the instructions at:

[Curricular Practical Training \(CPT\) | Bechtel International Center](#)

Special case: When a TGR student engages in summer Curricular Practical Training, they must enroll for at least one unit in the designated CPT course (BIOMEDIN 390 A, B or C) and should not enroll in TGR or pay TGR tuition. Bechtel International Center approves the student's CPT request and notifies the Registrar's Office, who then temporarily deactivates the TGR tuition group for tuition assessment purposes, so tuition is charged for only one unit.

International students who have already completed all course/unit requirements for their degree are not eligible for curricular practical training. CPT may not be used as a reason for delaying graduation. International students who are offered internships outside of the US

will need to allow significant lead time to consult with Bechtel and multiple embassies. The conditions for visas and internships will depend on individual treaties signed between nations.

**\*\*\*WARNING\*\*\*** Working without a CPT endorsed I-20 is a serious violation of your legal status which could forfeit your ability to remain in the U.S. and bar you in the future from re-entry to the U.S.

## **6. External employment**

Past experiences with our program have taught us that external work commitments, especially in areas that overlap with research interests in the lab, essentially always lead to problems, especially with respect to intellectual property. Such involvements are not in your best interest, and they can significantly delay the completion of your training.

If you do take part-time or hourly positions outside the university, you are required to inform the DBDS Exec. A maximum of eight hours per week is allowed for outside work. Failure to get approval before doing work off campus is a cause for concern about progress towards degree. Students must register for all quarters and be on campus, unless specifically approved otherwise.

The University restricts students on fellowships to no more than 8-10 hours per week of on-campus assistantships (such as a paid Teaching Assistantship in a different department). International students also have strict limits on work hours—please check with the Student Services Officer or Bechtel International Center.

## **7. Finances**

### ***7.1. Fellowship Stipends***

Students on fellowships (NLM, SGF, SIGF, NRSA, NSF, etc.) receive stipend payments at the beginning of each quarter for the entire quarter. If you are living in campus housing, the system is set up to automatically subtract the housing fees from the stipend amount. Stipends for living expenses usually are taxable but income taxes are not withheld.

### ***7.2. Assistantships (Salary)***

Students being paid on any type of assistantship, usually a Research Assistantship funded by the PI, or students paid on any other type of hourly appointment that requires submission of hourly time sheets, are paid on the same schedule as the staff and faculty: work completed on the 1st-15th will be paid on the 22nd of the month, and work completed on the 15th through the end of the month will be paid on the 7th of the next month.

- The I-9 form must be completed before assistantship checks can begin. Reach out to a Student Services Officer for information on where to go to complete this mandatory paperwork.

- Please note that housing and other fees are not automatically deducted from your salary.
- Your salary is taxable and taxes will be withheld as you request on the W-4 Tax Data form, submitted through Axxess.

Switching between the two payment systems requires careful budgeting. For example: Switching from a fellowship (SGF, NLM) stipend to an assistantship salary: If the fellowship ends after Summer Quarter, and you have an RA appointment for Fall Quarter, you will receive your Summer stipend payment at the beginning of that quarter in June. You will not receive your first paycheck until October 22, as the Fall Quarter does not begin until October 1 (in [Payroll](#) terms), and you are paid for the first half of the month (October 1-15) on October 22nd and for the second half of the month (October 16-31) the following month on November 7th.

### **7.3. Direct Deposit**

Fellowship stipends and assistantships payments are best handled through direct deposit to your bank account. To set up your direct deposit, login to Axxess and follow these directions: <https://studentservices.stanford.edu/my-finances/refunds-and-direct-deposits>

### **7.4. Holds**

Checks and other types of payments to the student will not be issued if the student has unpaid fees from previous quarters (housing, activity fee, etc.), has not submitted the federal employment eligibility form (I-9 for employee Payroll only), federal and state tax withholding certificate, and patent agreement form (SU-18, done online in Axxess).

Outstanding bills from the library, University, or Vaden Health Center will also result in holds. Holds must be cleared with the originating office before stipend checks will be issued. Please pay your housing and other miscellaneous fees.

If you owe money for tuition or health insurance and receive funding from DBDS, please see Student Services Officer. If another department is responsible for your funding, please contact the appropriate department. The DBDS Student Services Officer is happy to help in those situations too. Check your account in Axxess often! Please see Student Services Officer if you need help resolving any issues.

### **7.5. Taxes**

Unfortunately, DBDS Student Services cannot give tax advice. Here are some useful resources.

- Start here: [1098-T FAQ's & Resources | Student Financial Services](#)
- According to this site you do NOT have to pay income taxes on Vaden Health Services Fee, Health Insurance, or Required Fees (such as 1st year student Document Fee or ASSU Fee).

- Stanford issues an annual tuition statement, IRS Form 1098-T, to provide information necessary for students or parents to claim educational tax credits (<http://www.irs.gov/uac/Tax-Benefits-for-Education:-Information-Center>). It has come to our attention that some online accounting programs (i.e., Turbo Tax) inappropriately refer to Form 1098-T as an income form. Using the 1098-T form to determine income rather than claim educational tax credits can cause misunderstanding and errors. Do NOT use the 1098-T form to determine fellowship/scholarship income.
- International students may contact Bechtel International Center
- Also, IRS website: <http://www.irs.gov/>

## 8. Graduation

### 8.1. Graduation Photo

All PhD students should have their photograph taken before they defend their thesis. Fulltime academic MS students should have photos taken the quarter before graduation. Student Services will reach out to graduating students with a list of photographers and the DBDS program will pay for the photography session and print. The portrait sitting should be around \$250-\$300 plus tax/shipping fees (to be sent to the DBDS office) for (2) 5x7 professional portraits in black and white.

See the Student Services Officer for additional information and to provide your name as you want it to appear on the brass plate.

HCP MS and Coterminial MS students will have their names added to plaques as well. Please inform the Student Services Specialist how you would like your name to appear on the brass plate.

### 8.2. Degree Conferral

In order to have your degree conferred, you must have completed all of the University and Department requirements, and submitted all work before the deadlines. The University imposes requirements such as residency, submission of official scores and transcripts, payment of fees, and return of library books, that the DBDS program has no control over and sometimes no knowledge of. You should make sure that these have been addressed.

Checklist items for Degree Conferral:

- Officially apply to graduate in Axxess by the [application to graduate deadline](#)
- Provide us with an updated [course flowsheet](#) (which gets reviewed after the application to graduate deadline passes)
- Provide us with your milestone dates, specifically when you completed your (2) TA requirements and thesis research in progress meeting date
- Forward any departmental approved course waiver communications

- Run your unofficial transcript and check for any outstanding GNRs or Incompletes. Contact your professors to update.
- Remind faculty and TAs that you are graduating at the end of the quarter and to get your grades in ASAP so that you can be cleared for graduation.

### **8.3. Notice of Intention to Graduate**

You must file a Notice of Intention to Graduate (“apply to graduate”) through AXESS for the quarter you complete the degree requirements. If you do not finish in time, you will need to annul the initial Intention to Graduate and submit a new one for the quarter in which you intend to finish. Please refer to the University calendar for deadlines. There are no exceptions for missed deadlines. This is a University rule. The deadlines are listed in AXESS and on the academic calendar.

### **8.4. Graduation Quarter**

If you have completed everything except for depositing the report, thesis or dissertation, you may submit that and graduate while registered for a Graduation Quarter your very last quarter. This Graduation Quarter option is only available for one quarter. You must be an Active student registered the quarter prior to this or on an approved Leave of Absence and you must have filed TGR papers and defended your thesis before this. You will still need to file an Intention to Graduate for that last quarter in AXESS. A small tuition fee will be charged and you will be considered a full-time student for various administrative purposes. Your degree will not be conferred until the official conferral date for that final Graduation Quarter.

### **8.5. Commencement**

DBDS students from all degree programs are encouraged to participate in Medical School Commencement, which is coordinated by the Office of Student Services in the School of Medicine. If you complete your degree in June or in a previous quarter during that academic year, you will be encouraged to attend the ceremony.

## **9. Change log**

- 2017 September: entirely new format with heavily revised content, including description of Written Qualifying Examination for PhD students.
- 2017 October: updated description of international travel.
- 2017 November: added note that your PI should approve of you applying to take the informatics content part of the written qualifying exam.
- 2018 January: added Biomedical Data Science suite mail code. Minor textual changes to section on written quals.

- 2018 February: added text about preparing slides for preproposal and thesis proposal defense.
- 2018 April: removed most of the text about the PhD Qualifying Exam because that text and the corresponding content outlines are available in a Box folder.
- 2018 April: added text about noting source of figures/tables in your slides.
- 2018 May: replaced old Thesis Proposal Defense + Final Talk with Thesis Defense.
- 2018 May: clarified ergonomics equipment section.
- 2018 October: rewrote the Progress Report section to reflect current (greatly simplified) procedure.
- 2019 May: Minor updates to Flowsheet/Program Proposal Instructions
- 2019 August/September: Updated stale URLs. Clarified Waiver process. Updated computing environment section. Clarified TA requirement. Clarified Qualls section. Added a section on funding support for MS students. Expanded the students section including links for new students and information about the retreat and orientation. Updated emergency information.
- 2019 November: Clarified advisor change procedure per CGAP requirements. Updated Qualls procedure for 2019-20. Added section on applying to the PhD program while in the MS program
- 2020 January-March: PhD funding plan clarification. Travel clarifications. Reordered portions of Section 2. Added wellness resources. Further Qualls clarifications. Temporary reference to document related to public-health crisis situation.
- 2020 Spring: Clarified NIH public access policy. Added links and resources. Rearranged a few sections (e.g. on mailing lists) for formatting. Expanded discussion of TA requirements and types. Added details for HCP program and switching policy
- 2020 August. Slightly modified the Academic MS description to reflect the text in ExploreDegrees about research rotations and the required research paper. Removed description of funding for international students because it is only relevant during application process.
- 2020 September. Reverted the curriculum description to remove “BMI-relevant” and replace with “Unrestricted”. Cleaned up the email lists. Add to explanation of 50% RAsip. Fixed description of advice on Qualls. Clarified no need to complete research project if student transfers out of the Academic MS program. Updated description of current course waiver procedure to remove requirement of approval of academic advisor.



- 2020 October. Added link to Office of Accessible Education (OAE).
- 2021 May. Removed Walkthrough INFO for graduation.
- 2021 August. Added info on Internships and adding an MS degree
- 2021 September. Lots of minor wording changes. Clarified role of co-advisors, and doctoral dissertation reading committee.
- 2021 November: Clarify second-year committee meeting for PhD students.
- 2022: Oct/Nov Updates:
  - Section 1.4 compute resource links have all been updated
  - Section 2.3 How to stay updated on BMI/DBDS events new section
  - Section 2.4 How to reserve a conference room
  - Section 2.12 Cardinal Print instructions
  - Section 3.1 Tuesday talks changed to Monday talks
  - Section 3.2 More clarification on Co-Advisors
  - Section 3.4 Waivers and Exceptions – clarification ie 52 units of formal coursework required
  - Section 3.7.1 TAs item #1 added to help clarify expectations; also removed mention of TA reviews being attached to student records
  - Section 3.9.2 Removed mention of MS progress reports 3.9.2, which are no longer required.
  - Section 3.9.5 Mentioned the Google doc with potential research opportunities
  - Section 3.10.1 Added a reminder that for the CS/Stats/Math/Eng electives that you can have no more than 9 units in courses below the 200 level.
  - Section 3.10.3 Mentioned the Google doc with potential research opportunities
  - Section 5.3 Internships –added verbiage for MS students
  - Section 8.1 Graduation Photos – updated information
  - Also: Updated many links, and a few typos
  - On all Document changed BMI to DBDS; BMI Executive Committee changed to DBDS Graduate Program Executive Committee; Biomedical Informatics changed to Biomedical Data Science

As of October 2023, the following changes were made:

- Changed “bmi::ethics” to “dbds::ethics”
- Changed all mentions of BMI or Biomedical Informatics to DBDS or Biomedical Data Science
- Section 1.4: Updated Compute Cluster info on Nero and Carina
- Section 2 paragraph 2 : Updated information regarding annual retreat
- Section 2.5 New bullet at beginning. To reach student services please use the following email: [dbds-studentservices@stanford.edu](mailto:dbds-studentservices@stanford.edu). Also updated\_new DBDS listservs
- Section 3.2 Research Advisors and Coadvisors Updated
- Section 3.4 Added transfer unit policies for PhD Students
- Section 3.6: Updated chart with degree programs and annual to-do's

- Section 3.9.4: Update to clarify that the research advisor here can be primary, secondary, or advising faculty
- Section 3.10.7.1: added information on NSF Graduate Research Fellowship; updated NRSA Fellowships dates for cycle 2 and 3
- Section 3.10.8 Rewritten to clarify oral and written quals
- Section 3.10.9 Updated info in Pre-Proposal Talk (now called “Research in Progress” Talk)
- Section 5.1 More info about Leave of Absence and implications on Cardinal Care health insurance coverage

As of September 2024, the following changes were made:

- Section 1.4 (after chart is added) – updated compute offerings
- Section 1.4 Updated information and included chart
- Section 2.3 Added link since it was missing
- Section 3.2 Link to Advising Faculty was incorrect, now fixed
- Section 3.10.1 Removed “If you were admitted before August 1, 2016, you may follow this curriculum, or the old curriculum, listed on the [DBDS website](#).”
- Section 3.10.2 Added the chart here that is currently in section 10.5 after the verbiage about informal overview of milestones. Added a note re "See the subsequent sections for more information on the Milestones, Progress report, IDP etc."
- Section 3.10.2 (after milestone chart and verbiage is added)
- Section 3.10.5 Added link to student progress report form
- Section 3.10.5 new section regarding the annual DBDS Progress report has been added.
- Section 3.10.7.1 – after this is updated with new dates, amounts, and confirm all info
- Section 3.10.7.1 Updated the link and dates to NSF application deadlines
- Section 3.10.9 Added link since it was missing
- Section 3.10.9 Link to Research-In-Progress Guidelines was broken, now fixed
- Section 3.10.10 Added “Please see the milestones chart in section 3.10.2 on the timing and expectations for meeting with your Dissertation Reading committee. Note that students must meet with the reading committee 2x per year in they fifth year and beyond.”
- Section 3.10.11 Added new requirement for the final thesis draft to also be sent to reading committee for any final input, especially when oral committee has different members in it.
- Section 3.10.12.1. Added classroom booking instructions for Thesis Defenses
- Section 3.10.15 – Clarification for MS students interested in applying to PhD program
- Section 4.0 travel (increased to \$1300 the available funding for travel to a conference per student)
- Section 5.1 Updated Vaden Health Insurance section. Added two new bullet points to update the policy.
- Section 7.2 Added Payroll link for timings of Salary appointment spans
- Section 8.1 Increase graduation photo budget
- Section 8.2 Added a degree conferral checklist
- All the broken links throughout the handbook have been fixed and verified