Biomedical Informatics and Data Science, MS

Student Handbook

2024-2025 Catalog

ASU Charter

ASU is a comprehensive public research university, measured not by whom we exclude, but rather by whom we include and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves.

Inclusive Excellence at the College of Health Solutions

The College of Health Solutions has a mission to improve the mental and physical health of our larger and immediate communities by better understanding the challenges that individuals and populations face, while striving to be part of the solution. The college is committed to the idea that every member of our society should have the opportunity for good health and wellness throughout their lifespans. In an effort to actualize this ideal, we embrace and support inclusive excellence in everything we do, including teaching, research, service, and clinical practice.

Commitments to Inclusive Excellence

We create leaders who advance the principles of justice, diversity, equity and inclusion, shaping a future in which all community members can fully realize their potential.

We embed diversity, equity and inclusion as a transformational force in every aspect of our teaching, research and service as we work to address the challenges facing people and communities to stay healthy, improve their health and manage chronic disease.

We believe that diversity and inclusion are essential for excellence and innovation, and thus it is stated in our college values: We maximize opportunities for people of diverse backgrounds, abilities and perspectives.

We support underrepresented and historically marginalized groups and will not tolerate discriminatory or harmful actions.

Contents

ASU College of Health Solutions | Arizona State University

chsgrad@asu.edu | 602-496-3300

Introduction

Welcome

Welcome from the Biomedical Informatics faculty at ASU! This handbook is a guide for prospective and current graduate students in Biomedical Informatics (BMI). The handbook provides an initial resource for answers to questions about the program, but additionally students are also encouraged to consult with the graduate support coordinator, their faculty advisor, or program director, for any additional questions about the program.

Graduate College requirements define the basic policies for obtaining a degree from ASU, these policies can be found on the ASU Graduate College website located here. BMI has several additional requirements, beyond the standard ASU policies, which are identified in this handbook.

Vision and mission

The mission of the biomedical informatics and data science MS program is to advance the science and technology of biomedical informatics and data science, inform and influence policy, and improve individual and population health. The program is committed to excellence and leadership in 1) research and development that, through a diverse community of clinical and interdisciplinary collaborations, advances basic science, contributes broadly to knowledge, and solves real life problems in the biomedical sciences and health care; 2) education, through the creation and delivery of innovative curricula and instructional methods aimed across the spectrum of professional development, community engagement aimed at developing and fostering mutually beneficial relationships and collaborations that are relevant and responsive to community needs; and 3) service, through provision of resources and capabilities that foster education, inclusion and research and address local, regional and national problems.

Program overview

Biomedical informatics and data science is an interdisciplinary research field that focuses on collaborating among computer scientists, cognitive, social and decision scientists, engineers, mathematicians, data scientists, biologists and clinicians. These collaborations lead to advancements in information technology, data and knowledge management and analysis methodologies to improve our understanding of health care practice, public health and biological systems. The goal of this research is to enhance patient care and overall human health by expediting the process of transferring basic biomedical research to clinical use effectively and safely.

The Master of Science in biomedical informatics and data science program is designed to meet the rapidly growing need for professionals with expertise in informatics, data science, computer sciences and statistics in addition to knowledge of the biomedical sciences and the clinical environment in the health care professions.

Program contacts

Program director: Valentin Dinu, valentin.dinu@asu.edu

Graduate support coordinator: Jill Atwood, chsgrad@asu.edu

Program faculty: see Appendix A

ASU College of Health Solutions — Arizona State University

chsgrad@asu.edu | 602-496-3300

Admission

Admission to the Biomedical Informatics and Data Science, MS is available for Fall terms. Deadlines to apply can be found here. Applications will be reviewed by the admissions committee only once all materials have been received. Application status can be monitored in MyASU. Official admission decisions will be emailed to the student.

Quick Facts:

- Location: Tempe campus
- Start terms: Fall
- Time to completion: 2 years

Note: Tempe is the program's home campus. Most courses will be in-person at the Health Futures Center (6161 E. Mayo Blvd, Phoenix, AZ 85054).

Graduate admission requirements

ASU maintains minimum standards for consideration for admission to graduate programs. The program may establish requirements in excess of those established by the university.

- An earned bachelor's degree or higher from a regionally accredited institution in the U.S., or the equivalent of a U.S. bachelor's degree from an international institution officially recognized by that country.
- A minimum grade point average of 3.00 (scale is 4.00 = "A") in the last 60 semester hours or 90 quarter hours of undergraduate coursework is required to be considered for admission to an ASU graduate degree program.
- International applicants must provide proof of English proficiency. For more information, visit the admissions website.

Academic program requirements

In addition to the graduate admission requirements, the program requires the following as part of the application:

Undergraduate or graduate degrees – bachelor's or master's degree from a regionally accredited institution; Prior degrees in biology, computer science, engineering or statistics, or post-baccalaureate training as a health professional in medicine, nursing or pharmacy is preferred; Applicants who have earned degrees in other unrelated fields with appropriate academic backgrounds also will be considered.

Prerequisite coursework – students admitted to the program must have basic competencies in general biology (BIO 181 or equivalent), statistics (HCD 300 or STP 226 or equivalent) and computer programming (BMI 110 or CSE 110 or equivalent); Exceptionally well-qualified applicants who lack basic competencies in general biology, statistics, or computer programming and who are not able to complete the indicated courses prior to the start of BMI graduate studies may be admitted with a deficiency (see Provisional acceptance guidelines).

Statement of purpose – one to two pages; indicate interest in the program, describe expected outcomes from the program, identify potential faculty advisors and areas of research, and elaborate on how the degree will support their goals; must include at least one paragraph that describes the

educational and professional background in the following three areas: computer science; statistics and mathematics; and biological sciences and health sciences.

References – Contact information of three references is required. References will be contacted via email to submit a letter of recommendation and respond to a series of questions about the applicant.

Resume or curriculum vitae – include relevant personal, professional, educational and community activities (one to two pages).

Provisional acceptance guidelines

In some instances, a student may be admitted provisionally and/or with a deficiency. Students should refer to the official admission letter sent by the Graduate College via MyASU to determine if they have been admitted with a provision and/or deficiency.

A provisional admission requires a student to maintain a 3.0 or higher GPA within a specified timeframe. If the 3.0 is not achieved by the end of the timeframe specified on the official admission letter, the student will be automatically dismissed from the degree program.

A deficiency requires a student to fulfill a competency area within a given timeframe. The academic program will monitor students with deficiencies. If a deficiency is not completed within the timeframe indicated on the official admission letter, the student may be recommended for dismissal from the academic program.

Pre-admission credit policy

Credit hours completed at ASU or at another regionally accredited U.S. institution or international institution officially recognized by that country, before the semester and year of admission to an ASU graduate degree program, are considered pre-admission credits. With the approval of the academic unit and the Graduate College, students may include a maximum of 12 graduate-level credit hours with grades of "B" or better that were not used toward a previous degree. Preadmission credits must have been taken within three years of admission to the ASU degree or certificate program to be accepted. Certain types of graduate credits cannot be transferred to ASU (see the Graduate College Policy Manual). Official transcripts must be sent to Graduate Admission Services from the records office of the institution where the credits were earned.

Program transfer policy

Students who want to change from the Biomedical Informatics and Data Science, MS program to the Biomedical Informatics, PhD should connect with the program director and graduate support coordinator of the program they wish to change to for guidance. Additional materials or a new program application may be required in this process. Admission to the doctoral program can be denied. If admitted, a maximum of twelve credits from the original program may be applied to the new program, in accordance with the pre-admission credit policy and program policies at the time of the program change. To maximize the ability to use completed courses, students who are considering a program change are strongly encouraged to connect with the appropriate graduate support coordinator and program director as early as possible.

Accelerated program (4+1)

The College of Health Solutions offers an accelerated master program designed to enable highly qualified undergraduate students to earn a Bachelor of Science in Biomedical Informatics and a Master

of Science in [Biomedical Informatics and Data Science](#) in five years. Undergraduates interested in this program should connect with an advisor regarding the program in the first semester of their junior year. The preliminary application deadline is June 1st of the calendar year prior to participation. For more information about the accelerated master program and how to apply, visit the [Accelerated Master Programs](#) page.

Accelerated master programs may use a maximum of 12 pre-admission credits which may include up to a maximum of 12 hours shared between the bachelor's degree and master's degree. Students in accelerated programs should contact their advisor to ensure proper sharing of credit hours.

Once admitted to an accelerated master program, students are considered to be undergraduates until all requirements for the bachelor's degree have been fulfilled. To maintain satisfactory progress as an undergraduate student in this program, students must maintain a 3.0 or higher cumulative ASU GPA and a 3.0 or higher GPA in completed graduate coursework. Students who do not maintain satisfactory academic progress may be put on probation in the program and/or dismissed from the accelerated master program. Students who are removed from an accelerated master program may finish the undergraduate portion and apply to graduate programs outside of the accelerated program, but may not share coursework between the two degrees.

Tuition and assistance

Tuition and fees

Tuition is set by ASU and the Arizona Board of Regents each year. View the general Tuition and Fees Schedule, or calculate a more specific estimate of charges using the ASU Tuition Estimator. Information on residency requirements can be found at Residency for Tuition Purposes.

The Biomedical Informatics and Data Science, MS has a program fee of $222 per credit ($2,000 max per semester).

Financial assistance

Financial assistance is available through a variety of sources, including:

- College of Health Solutions scholarships
- Graduate College fellowships
- National Science Foundation Graduate Research Fellowship Program
- National Institutes of Health Grants
- National Research Service Award (NRSA) Research Training Grants
- Traditional financial aid (loans and grants).

For more information and assistance, visit the Financial Aid website.

Travel assistance

Financial assistance for travel related to conferences, workshops, or training related to a student's graduate program is available through several resources.

- Graduate College travel awards
- Graduate and Professional Student Association travel grants
- College of Health Solutions student conference support

Assistantships

All funded RA and TAships within the program are competitive. Doctoral students are prioritized for these opportunities. In rare cases, dependent on funding and student credentials, students in the master's degree program may be considered. Funded RA and TA positions consist of a nine-month position (August – May) and include a tuition waiver. All students must have the expertise, experience, and willingness to be a TA and teach courses or laboratories in the BMI curriculum or be an RA as funding allows. International students must demonstrate English proficiency before they can begin a TA appointment (note that the proficiency standards required for being a TA are higher than for admittance into a graduate program). An ASU Graduate Assistantship (TA/RA) handbook and policy manual is available from the Graduate College (TA/RA handbook) to provide an overview of ASU policies and support services pertinent to teaching and research assistants and associates.

- Eligibility: In order to be eligible to receive an appointment as a TA/RA, a student must be regularly admitted to and enrolled in the graduate degree program. During the fall and spring semester, a TA/RA must be enrolled for a minimum of six hours. During the summer session(s) a TA/RA must be enrolled for a minimum of 1 hour, if on a TA/RA appointment over the summer.

Students on GSA appointments over the summer do not need to enroll in 1 credit. Audited courses or undergraduate courses may not be used to fulfill this requirement.

- Training for TAs: All **new TAs** are required to complete Pre-Service Training prior to your first semester as a TA.
- Reappointment: TA/RA appointments are, by definition, term appointments. TAs/RAs should not assume that they will be reappointed merely because no notification or termination at the end of the appointment period has been received. Reappointments are subject to and contingent upon the continuing availability of funds and the TA's/RA's satisfactory performance. TAships are based upon the availability of funds and are not guaranteed. In considering reappointments, the hiring unit or project director must consider the TA's/RA's contribution to the objectives of the unit or project along with the associate's academic progress.
- Evaluations. TAs/RAs will be reviewed periodically to inform students as to their progress and outline areas for improvement if necessary. These reviews will include an evaluation of the student's abilities and behaviors concerning completion of assigned tasks; ability to work independently once tasks are explained; ability to analyze problems and find solutions; cooperation with supervisors and other TAs/RAs; and professional behavior.
- Termination: In the rare instance that a TA/RA is to be terminated prior to the end of the appointment period, then the TA's/RA's supervising faculty member or head of the academic unit should write to the student describing the reasons for the action. The dean of the academic college (when applicable) and the dean of Graduate College should receive copies of the letter. Within 10 days of the receipt of the notice of termination, the TA/RA may appeal the decision at the unit and college level. If a TA/RA is unable to continue an appointment, he or she must inform the supervising faculty member and the program director in writing of the reasons for the action, with the understanding that the student will lose financial support.

Summer funding: TAships are NOT available over the summer. RAships are dependent upon funding.

Curriculum and graduation requirements

Program requirements

The Biomedical Informatics and Data Science, MS is comprised of 32 credits, including an applied project. The master's degree program is designed to meet the rapidly growing need for professionals with expertise in informatics, computer sciences and statistics in addition to knowledge of the biomedical sciences and the clinical environment in the health care professions.

Required Core (17 credits)

- BMI 502 Foundations of Biomedical Informatics Methods I (3)
- BMI 505 Foundations of Biomedical Informatics Methods II (3)
- BMI 515 Applied Biostatistics in Medicine and Informatics (3)
- BMI 540 Problem Solving in Biomedical Informatics (3)
- BMI 570 BMI Symposium (2)
- BMI 601 Fundamentals of Health Informatics (3)

Other Requirements (3 credits)

- BMI 404 Clinical Environments (3) or
- BMI 504 Introduction to Clinical Environments (3)

Electives (9 credits)

Culminating Experience (3 credits)

- BMI 593 Applied Project (3)

Note: A grade of B or better is required in all coursework, except courses applying to the electives area.

A maximum of 6 credit hours of 400-level coursework can be included on an iPOS with program approval.

Faculty advisor

After admission to the master's degree program, new students will use the program director as the initial faculty advisor. Students should ultimately select a faculty advisor who works with BMI in the student's area of interest (bioinformatics, population health, clinical informatics, or imaging).

Role of the faculty advisor:

- Advise students on their overall academic program, evaluate academic progress, moderate concerns
- Ensure students have a broad education base covering all areas in biomedical informatics
- Oversee the student's applied project, working in conjunction with the applied project coordinator

Electives

Students must complete a minimum of 9 credits of elective coursework to include at least 6 credits of coursework in BMI. Electives should be chosen in consultation with the student's faculty advisor. See Appendix B for a list of pre-approved courses.

Courses that are not pre-approved may be considered. The following procedure should be followed by students who wish to take outside electives:

1. The student prepares a written request which includes:
   - A description of the course;
   - The objectives of the course;
   - How the course enhances the ability of the student to conduct research.
2. The request is reviewed by the student's faculty advisor
3. If approved by the faculty advisor, the request should be forwarded by email to the graduate support coordinator no later than two weeks before the start of the semester, to be reviewed by the program director
4. If the program director approves the elective, the approval will be forwarded to the graduate support coordinator who will notify the student.

Internship

While not required, students have the option to pursue an internship for academic credit with an external organization. Credit for an internship is earned through BMI 584, with 1 credit equaling 45 hours at the site. A maximum of 3 credits of BMI 584 may be applied to the electives requirement. Students are encouraged to connect with the graduate support coordinator as early as possible if they plan to pursue an internship as part of their plan of study.

Students who choose to pursue an internship are responsible for securing an appropriate host site for their internship experience, including identifying a site supervisor who will serve as the primary day-to-day contact for the student and provide support for the student's work at the site. Additionally, a faculty mentor must be identified who will assign and review academic work needed while enrolled in BMI 584.

Once the student has indicated an interest in pursuing an internship, the graduate support coordinator will connect the student with the internship support coordinator. The internship support coordinator will confirm whether the internship site has an affiliation agreement in place. An affiliation agreement is a legal document between the site and ASU that must be in place in order for a student to earn credit for an internship opportunity with an external organization. The agreement process can take 3 weeks to 6 months or more to complete. Students do not participate in the affiliation and contract negotiation process.

Once an affiliation agreement between ASU and the internship site is in place, the following steps are needed for BMI 584 enrollment:

1. Graduate support coordinator emails student the BMI 584 enrollment form.
2. Student signs the form and obtains the signature of their faculty mentor.
3. Student submits BMI 584 enrollment form with signatures to the graduate support coordinator.
4. Graduate support coordinator provides permission to the student to enroll for BMI 584.
5. Student enrolls in BMI 584 and selects their faculty mentor as the instructor during registration.

Note: Additional steps may be needed based on individual circumstances or student residency. International students pursuing an internship must communicate with the International Students and Scholars Center (ISSC) as early as possible for visa requirements to participate in an internship.

For student concerns during an internship, the student should first contact their faculty mentor. If the concern is not able to be resolved with assistance from the faculty mentor, students should contact the graduate support coordinator.

ASU College of Health Solutions
Arizona State University

chsgrad@asu.edu | 602-496-3300

Applied project

Completion of an applied project through enrollment in BMI 593 Applied Project for 3 credits is required after the first year of study. Students must receive a B or better in the BMI 593 course to be eligible for graduation.

The faculty advisor will serve as instructor for the BMI 593 Applied Project course. Students who choose to complete a project external to BMI will need to choose the applied project coordinator as the instructor upon registration for BMI 593. The external project mentor will be the site preceptor. Prior to registration, students must complete an interest statement that lists the faculty mentors and contains an abstract of the proposed project. This statement must be signed by the student's faculty advisor and returned to the applied project coordinator.

A full project plan will be required at the beginning of the semester and should be agreed upon by the faculty advisor. It will include project information such as title, research location, objectives, resources required, and a project timeline. Throughout the course, students will be expected to submit progress reports and project updates to the applied project coordinator, with the approval of their faculty advisor. Should any issues arise that may jeopardize timely completion of the project, it is important that students communicate immediately to both their faculty advisor and the applied project coordinator.

The project itself can range from pure literature research (e.g. literature review; perspectives) to laboratory science (e.g. isolation of DNA for sequencing) to the clinical setting (e.g. surveys for clinicians or patients). The important part is that the project is in the field of biomedical informatics, which is very broad and interdisciplinary. Students should start thinking about interests, future project ideas, and potential faculty advisors as they go through classes in the first year. Many students obtain an internship in a biomedical informatics organization and the work completed there may qualify for a project as well. Students should contact the applied project coordinator at least three months before the semester in which they plan to take BMI 593.

Final submission should be approximately 15-20 pages (actual text pages *excluding* cover page and references). A longer paper does not mean a better paper; it is often harder to be concise and to the point. The final paper should follow a journal article's structure (abstract, introduction/background, methods, results, discussion, conclusion, references, appendices, supplemental information) but depending on the specific project, may need to be altered. Submission of the project report written as a journal publication is also encouraged, but not required. Students in the applied project are highly encouraged to prepare a poster for a future poster session (e.g. AMIA, ASU student poster session) as well.

Application to graduate

Students should apply for graduation during the semester of planned graduation and must apply no later than the deadline specified for that term. Students must have an approved iPOS on file before applying for graduation.

Plan of study

To graduate in a timely manner, students should follow a plan of study. See below for sample plans. Deviation from a plan of study should be discussed with the graduate support coordinator and program director. Failure to follow a plan of study may result in delayed graduation.
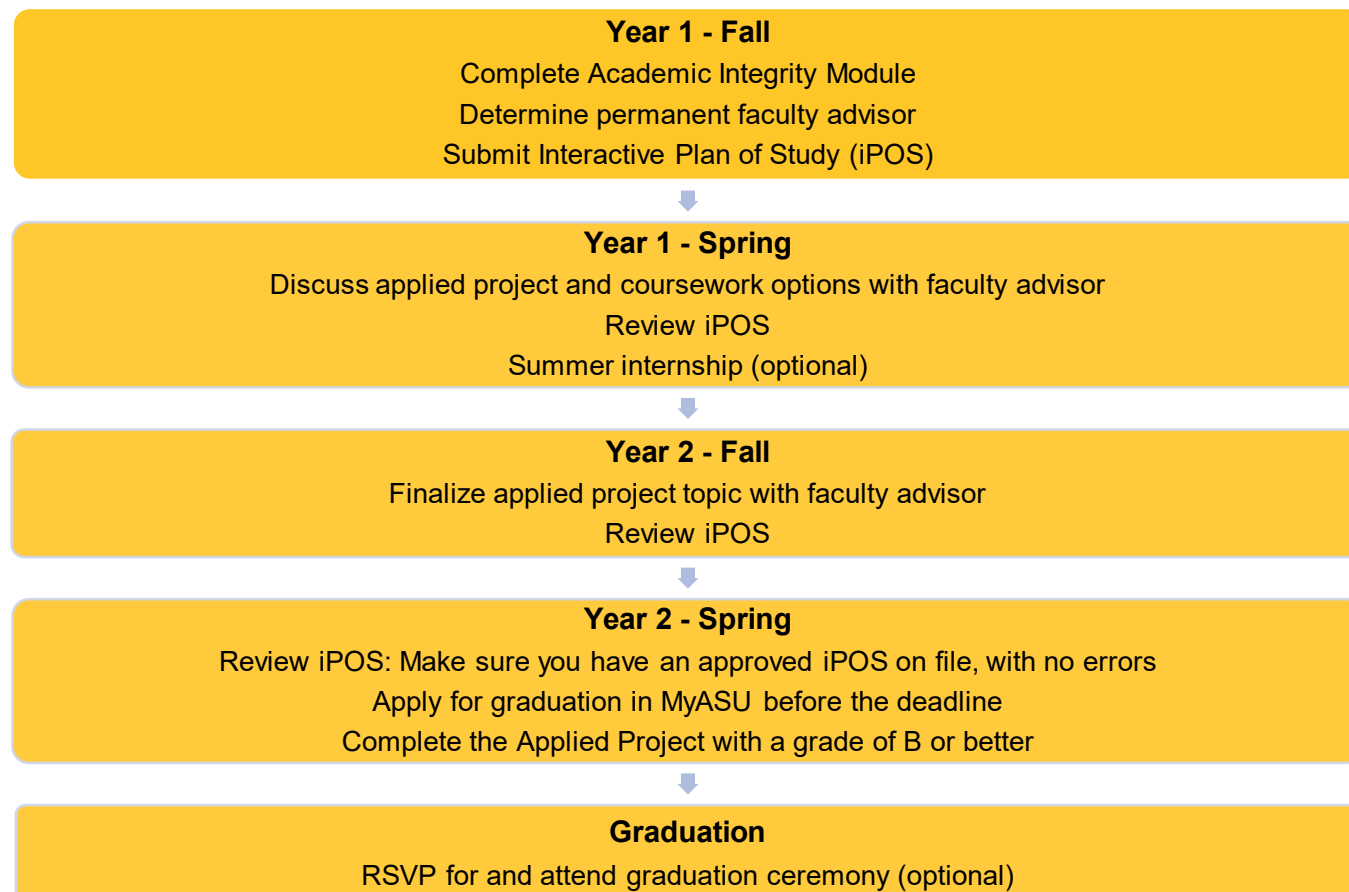
Note: Core BMI courses are offered on a once-per-year basis. Thus, failure to complete a required graduate course during the appropriate semester of enrollment may delay graduation.

Sample Plan of Study, Fall Start

Term/ Session	Course	Credits
Year 1 - Fall	BMI 502 Foundations of Biomedical Informatics Methods I	3
	BMI 515 Applied Biostatistics in Medicine and Informatics	3
	BMI 570 BMI Symposium	1
	BMI 601 Fundamentals of Health Informatics	3
Year 1 - Spring	BMI 504 Introduction to Clinical Environments	3
	BMI 505 Foundations of Biomedical Informatics Methods II	3
	BMI 570 BMI Symposium	1
	Elective	3
Year 2 - Fall	BMI 540 Problem Solving in Biomedical Informatics	3
	Elective	3
	Elective	3
Year 2 - Spring	BMI 593 Applied Project	3

Note: BMI 502 and BMI 601 are required in the first term. BMI 505 is required in the second term.

In addition to the required coursework, the steps to achieve a Master of Science in biomedical informatics and data science are listed below.

Year 1 - Fall

Complete Academic Integrity Module

Determine permanent faculty advisor

Submit Interactive Plan of Study (iPOS)

Year 1 - Spring

Discuss applied project and coursework options with faculty advisor

Review iPOS

Summer internship (optional)

Year 2 - Fall

Finalize applied project topic with faculty advisor

Review iPOS

Year 2 - Spring

Review iPOS: Make sure you have an approved iPOS on file, with no errors

Apply for graduation in MyASU before the deadline

Complete the Applied Project with a grade of B or better

Graduation

RSVP for and attend graduation ceremony (optional)

Interactive plan of study (iPOS)

The Interactive Plan of Study, or iPOS, is an agreement between the student, the academic unit, and the Graduate College. The student must submit their iPOS in the first semester of the program. Students are encouraged to review the iPOS at the end of each semester to ensure the courses listed on the iPOS match the student's transcript and that the courses meet the plan of study course requirements. More information on iPOS can be found here.

Faculty advisor/chair: program director

Change of coursework: If a change of coursework is needed, the student must update the courses listed in the iPOS and submit a course change for review. This process is required if you projected a course you did not complete, or if you need to change courses listed. The iPOS will be routed electronically to the graduate support coordinator for review and approval, and then for auditing by the Graduate College.

Specializations and certifications

The College of Health Solutions prepares graduates for excellence upon entering the workplace. Since certification and licensure requirements vary by profession and from state to state, we recommend that you visit the ASU licensure website to determine if your program meets the requirements of individual state licensures or national certifications, as applicable. If you have specific questions, please contact your program director or degree coordinator.

Satisfactory academic progress

All graduate students are expected to make systematic progress toward completion of their graduate program. This progress includes satisfying the conditions listed below, and achieving the benchmarks and requirements set by the individual graduate programs as well as the Graduate College. If a student fails to satisfy the requirements of their program and/or the benchmarks outlined below, the student may be dismissed from their program based on the academic unit's recommendation to the Graduate College at which time the dean of the Graduate College makes the final determination.

Satisfactory academic progress includes:

1. Maintain a minimum 3.00 for all GPAs.
2. Satisfy all requirements of the graduate program.
3. Satisfy the maximum time limit for graduation for the student's graduate program (six years for masters and certificates, ten years for doctoral)
4. Successfully pass comprehensive exams, qualifying exams, foreign language exams, and the oral defense of the proposal/prospectus for the thesis or dissertation.
5. Successfully complete the culminating experience.
6. Graduate students must remain continuously enrolled in their graduate program. Failing to do so without a Graduate College approved Leave of Absence is considered to be lack of academic progress and may result in the Graduate College withdrawing the student from their program.

GPA and grades

Graduate students must maintain a minimum 3.00 (scale is 4.00 = "A") grade point average (GPA) to maintain satisfactory academic progress and to graduate. The minimum 3.00 GPA must be maintained on all GPAs (Plan of Study (iPOS) GPA, Overall Graduate GPA and Cumulative GPA):

chsgrad@asu.edu | 602-496-3300

1. The iPOS GPA is calculated on all courses that appear on the student's approved iPOS
2. Cumulative GPA represents all courses completed at ASU during the graduate career.
3. The Overall Graduate GPA is based on all courses numbered 500 or higher that appear on the transcript after admission to a graduate program or graduate non-degree. This includes shared coursework if in an approved accelerated bachelor's/master's program.

Transfer credits and some courses taken in the Sandra Day O'Connor College of Law are not calculated in the iPOS GPA or the Graduate GPA. Courses lower than a "C" cannot appear on the iPOS but will be included when calculating the Graduate GPA. Courses with an "I" grade (incomplete) or "X" grade (audit) cannot appear on the iPOS.

University grade definitions and policies can be found here.

The Biomedical Informatics and Data Science, MS program requires a grade of B or better in all required coursework (excluding coursework applied to the electives area). If a lesser grade is earned in a required course, the course must be retaken. Note that if a student retakes a course to meet the minimum grade requirement of B or better, the grade will NOT be replaced. Both courses will be recorded on the graduate transcript and calculated for GPA purposes, per Graduate College policy. Students will not be able to register for milestones (e.g. BMI 593 Applied Project) until the grade requirement has been met.

Incomplete grade requests

An incomplete grade request may be considered by an instructor when a student, who is doing otherwise acceptable work, is unable to complete a course (e.g., final exam or term paper) because of illness or other conditions beyond the student's control. Unfinished work must be completed with the same instructor except under extenuating circumstances. The completion date is determined by the instructor but may not exceed one calendar year from the date the mark of "I" is recorded. Once the work is completed, faculty must request a change on the grade roster to post the grade. If a student does not complete the missing coursework by the date that is agreed upon on the incomplete request form, the instructor may change the grade to what was earned based on the work completed in the class. If the coursework is not completed after a calendar year, the incomplete becomes permanent. Repeating a class in which an incomplete is awarded will not replace the "I" on the student's transcript. Students must complete the incomplete request form and submit it to their instructor for review and processing.

Academic probation and dismissal

Failure to maintain a minimum 3.0 GPA or failure to satisfactorily progress in the program as referenced in this handbook will result in the student being placed on academic probation. Students will be notified of probationary status and expectations for improvement by the program director or graduate support coordinator. Time limits for probationary status may vary. Typically, students have 9 credit hours or one year, whichever comes first, to raise their GPA.

Students who fail to meet requirements or timeline needed to demonstrate satisfactory improvement will be recommended for dismissal from the program. Notice will be provided by the program and will include procedures for appeal.

Time to completion limit

All work toward a master's degree must be completed within six consecutive years. Graduate courses taken prior to admission that are included on the Interactive Plan of Study must have been completed

within three years of the semester and year of admission to the program. The six-year period begins with the term of admission to the program OR the earliest term of applied pre-admission credit.

Any exception to the time limit policy must be approved by the program director, the College of Health Solutions, and the dean of the Graduate College. The Graduate College may withdraw students who are unable to complete all degree requirements and graduate within the allowed maximum time limits.

Appeal and grievance processes

Grade appeal

For grade disputes during a class, students must first contact the instructor of the course. Concerns that are not able to be resolved with the instructor should be brought to the program director.

The process to appeal a final course grade may only be initiated by a student once the course has concluded and a final course grade has been posted to the student's transcript. Per university policy, grade appeals must be processed in the regular semester immediately following the issuance of the final grade in dispute (by commencement for fall or spring) regardless of whether the student is enrolled at the university.

The process begins with a discussion about the matter between the student and the course instructor. If the matter is unresolved, the student should submit a Grade Appeal Form for further review. If this review does not adequately settle the matter, the student should begin the formal procedure of appealing to the College of Health Solutions Academic Standards and Grievance Committee. More information on all steps of this process can be found here.

Student grievance

Students who wish to file a grievance about a non-grade-related matter may use the established procedure (more information can be found here). Non-grade-related grievances may include dissatisfaction with an instructor, problems with a classmate or other unresolved situations.

Appealing recommendation for dismissal

1. Students may appeal a decision for dismissal from the program by submitting a letter to the program director.
   a. The appeal letter must be received within 10 business days of the date of the letter of dismissal. The letter should state the reasons justifying a reversal of the original decision and provide substantive evidence in support of the request.
   b. Letters received after the 10 business-day interval will not be reviewed, and the dismissal will be final.
   c. The program committee will review all letters of appeal that are received within the 10 business-day time frame. The committee will submit their decision to the program director within 10 business days of receipt of the student's letter.
2. The program director will then notify the Student Success Hub of the decision. The Student Success Hub will inform the student of the decision.
3. If the appeal is denied, the student may appeal to the CHS Academic Standards and Grievances Committee within 10 business days of receiving the denial of the appeal. The CHS Academic Standards and Grievances Committee will review the dismissal and appeal materials and make

a recommendation to the dean of the College of Health Solutions. The dean will have 20 calendar days to make a final decision.

4. If at any stage, a timely appeal is not submitted by the student, the program director will recommend dismissal to the Graduate College via the Student Success Hub. The Graduate College will then inform the student of the dismissal by letter.

Student code of conduct and academic integrity

ASU expects and requires its students to act with honesty, integrity, and respect. Required behavior standards are listed in the ASU Student Code of Conduct, the ABOR Code of Conduct, the Computer, Internet, and Electronic Communications Policy, the ASU Student Academic Integrity Policy, and outlined by the Office of Student Rights & Responsibilities. Violations of a Graduate College, College of Health Solutions, or Arizona State University policy will result in academic review and may consequently result in student disciplinary procedures.

Academic integrity

The ASU Student Academic Integrity Policy lists violations in detail. These violations fall into five broad areas that include, but are not limited to:

1. Cheating on an academic evaluation or assignment.
2. Plagiarizing.
3. Academic deceit, such as fabricating data or information.
4. Aiding academic integrity policy violations and inappropriately collaborating.
5. Falsifying academic records.

Information on the Academic Integrity procedure within the College of Health Solutions can be found at https://catalog.asu.edu/policies/chs.

Newly admitted graduate students will receive a "priority task" on their MyASU directing them to complete a canvas module on academic integrity. The module consists of a PowerPoint that outlines academic integrity and students must take a quiz and pass with an 80% or higher.

Student code of conduct

Violations of the ASU Student Code of Conduct, other than the provision concerning academic dishonesty, are more generally considered inappropriate behavior. The Office of Student Rights and Responsibilities reviews and sanctions these matters. If a student violates both the academic integrity provision and additional provisions of the Student Code of Conduct, both the college and the Office of Student Rights and Responsibilities will review the matter. Each independently makes determinations concerning violations and appropriate sanctions.

Professional conduct

ASU is a community and a professional work environment. Graduate students are expected to treat their peers, teachers, students, staff, and members of the ASU community with respect and work with them in a professional manner. Graduate students are representatives of their program, the College of Health Solutions, and ASU. Students must demonstrate the requisite qualifications for successful professional performance, including interpersonal skills, basic communication skills, appropriate professional conduct, and satisfactory performance in field experiences.

Graduate students who demonstrate behaviors or characteristics which make success in their related fields questionable will be reviewed by the program committee. The committee's review may result in a recommendation for dismissal from the program or implementation of probational conditions for continued participation. Students may appeal a recommendation for dismissal by following established procedures.

College and university procedures and policies

All policies and procedures outlined in this handbook are in accordance with policy set by the Graduate College and Office of the University Provost. In some cases, program policies may be more restrictive than those set by Graduate College and Provost.

Continuous enrollment policy

Students must be registered for a minimum of one credit hour during all phases of their graduate education, including the term in which they graduate. This includes periods when students are engaged in research, conducting a doctoral prospectus, working on or defending theses or dissertations, taking comprehensive examinations, taking Graduate Foreign Language Examinations, or in any other way using university resources, facilities or faculty time.

Registration for every fall semester and spring semester is required. Summer registration is required for students taking examinations, completing culminating experiences, conducting a doctoral prospectus, defending theses or dissertations, or graduating from the degree program. More information on this policy can be found here.

Requesting a leave of absence

Graduate students planning to discontinue registration for a semester or more must submit a leave of absence request via their Interactive Plan of Study (iPOS). This request must be submitted and approved **before** the anticipated semester of non-registration. Students may request a maximum of two semesters of leave during their entire program. Students with a Graduate College-approved leave of absence are not required to pay tuition or fees, but in turn are not permitted to place any demands on university faculty or use any university resources. These resources include university libraries, laboratories, recreation facilities or faculty and staff time. More information on this policy can be found here.

Registration policies

Students are strongly encouraged to enroll in courses well in advance of the start of the term. Enrollment must be complete by the Add/Drop deadline for the session in which the class is offered. Courses that are dropped by the Add/Drop deadline will not appear on a student's transcript. If a course is removed from a student's schedule after this deadline, it will be considered a withdrawal and a grade of "W" will be recorded. Term dates and deadlines, including the Add/Drop, Tuition Refund, Course Withdrawal, and Session Withdrawal deadlines, can be found on the Academic Calendar.

Discrimination, harassment, and retaliation

Title IX of the Education Amendments of 1972 is a federal law which provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy ACD 401 make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. For information on resources, visit the sexual violence awareness, prevention, and response website.

ASU College of Health Solutions Arizona State University

chsgrad@asu.edu | 602-496-3300

Student support resources

Academic program support

Graduate students in the College of Health solutions may access the CHS website for information on college policies and resources and advising information.

University resources

- Graduate College
- Office of the University Provost

Academic and career support

- ASU Libraries
- Graduate Writing Center
- Career and Professional Development Services
- Graduate and Professional Student Association
- Student Clubs and Organizations

Business and finance services

- Financial Aid and Scholarship Services (financial aid)
- Billing and Student Finances (tuition, fees, and payments)
- Parking and Transit Services (permits, shuttles, public transit)
- Sun Devil Card Services (ID cards)
- Enterprise Technology (technology assistance)
- Sun Devil Dining (meal plans, M&G, hours)

Counseling services

ASU Counseling Services provides confidential, time-limited counseling and crisis services for students experiencing emotional concerns or other factors that affect their ability to achieve their goals. Support is available 24/7.

In-person counseling: Monday-Friday 8 a.m. – 5 p.m.

ASU Counseling Services, Student Services Building 234 Tempe, AZ 85287

480-965-6146

After-hours/weekends

Call EMPACT's 24-hour ASU-dedicated crisis hotline:

480-921-1006

For life threatening emergencies

Call 911

Disability accommodations

Reasonable accommodations are determined on a case-by-case, course-by-course basis to mitigate barriers experienced due to a disability (SSM 701-02). Students with disabilities who require accommodations must register with the Student Accessibility and Inclusive Learning Services and submit appropriate documentation. It is recommended students complete this process at the beginning of the term and communicate as appropriate with their instructor.

- Email: Student.Accessibility@asu.edu
- Phone: (480) 965-1234
- FAX: (480) 965-0441

Pregnancy: Students requesting services due to pregnancy (SSM 701-10) should be prepared to submit documentation regarding the pregnancy, any complications and clearance to return to school related activities. Student Accessibility can work with students to foster continued participation in a program, whether that be with academic accommodations such as absences or assistance requesting a leave, or through other requested accommodations.

Health and fitness

All ASU students enrolled in in-person programs have access to Sun Devil Fitness facilities on all campuses. For more information about facilities, membership and group fitness classes, please visit: https://fitness.asu.edu

For information about health insurance and appointments with care providers, please see the ASU Health Services website: https://eoss.asu.edu/health

International students

ASU's International Student and Scholars Center can provide support and answers to questions about visas, employment, scholarships and travel. To find more information or schedule an appointment with an ISSC adviser, visit the website: https://issc.asu.edu/

Veterans and military

The Pat Tillman Veterans Center provides guidance and support for students who are veterans, active-duty military or military dependents. For more information, please call the office at 602 496-0152 or visit: https://veterans.asu.edu/

Appendix

A: Program faculty

Marcela Aliste, PhD, MS, ACUE ([profile](#)) – molecular dynamics simulations, drug-receptor interactions, data privacy

Mara Aspinall, MBA ([profile](#)) – dynamics of COVID-19 testing, personalized medicine, genomic medicine, policy, advocacy, corporate leadership

Yunro Chung, PhD ([profile](#)) – biomarker discovery for personalized diagnosis, clinical trials, machine learning

Valentin Dinu, PhD ([profile](#)) – use of biological domain knowledge to supplement statistical analysis and data mining methods to identify genes and pathways associated with disease; exploration of database modeling approaches for managing large and heterogeneous data sets from clinical and biosciences domains

Bradley Doebbeling, MD ([profile](#)) – health care and systems redesign, population and health informatics, clinical workflow, information technology development and innovation

Michael Donovan, PhD, JD ([profile](#)) – intellectual property, biotech/diagnostics, infectious diseases, regulation of diagnostics

Adela Grando, PhD ([profile](#)) – clinical decision support systems, information technology for patient empowerment in healthcare, building mobile technology to support patient decision processes

Andrea Kamenca, MBA ([profile](#)) – telehealth, telemedicine, digital innovation, remote patient monitoring, AI, VR, AR

Chong Lee, PhD ([profile](#)) – cardiovascular disease and chronic disease epidemiology and health informatics, detection and prediction algorithms of chronic disease morbidity and mortality across various age and race groups

Jianming Liang, PhD ([profile](#)) – computer-aided diagnosis and prognosis of pulmonary embolism, personalized cardiovascular disease risk stratification, ensuring high-quality colonoscopy, personalized proton therapy for lung cancer

Li Liu, MD ([profile](#)) – advance precision medicine, incorporating evolutionary and functional information in model construction, translating bioinformatics discoveries into improvements in patient care

Anita Murcko, MD, MACP, FAMIA ([profile](#)) – patient-centered medical home, health information exchange, clinical decision support

Chinedum Ojinnaka, PhD ([profile](#)) – identifying associations between individual and population-level social determinants of health, food insecurity, health and healthcare disparities, health outcomes, cancer-related disparities, health policy, applied research methods

My Phan, DPhil ([profile](#)) – genomic epidemiology and bioinformatics of viruses

Matthew Scotch, PhD ([profile](#)) – genomic epidemiology of RNA viruses (influenza), phylodynamics, molecular epidemiology, bioinformatics, DNA sequence databases and metadata enrichment, natural language processing (NLP)

Kyle Singleton, PhD ([profile](#)) – predictive disease modeling, medical data integration, machine learning, and external validation

Davide Sottara, PhD ([profile](#)) – clinical informatics, knowledge representation, knowledge-driven model software systems, service-oriented event-driven software architectures, knowledge management and delivery, knowledge elicitation

Dongwen Wang, PhD ([profile](#)) – modeling and representation of biomedical knowledge in computer-interpretable format, management of biomedical data in specific context of workflow and team collaboration, development and dissemination of online resources, and delivery of technology-mediated behavioral interventions to facilitate knowledge translation, healthcare processes, and patient outcomes

Hassan Zadeh, PhD ([profile](#)) – mobile health, machine learning, algorithms

B: Pre-approved elective courses

Any BMI graduate level course is pre-approved for graduate students to take as a BMI graduate elective. Additionally, the following courses are options for additional elective requirements:

APM 504 Applied Probability and Stochastic Processes
APM 506 Computational Methods
APM 525 High-Performance Computing
APM 531 Mathematical Neuroscience I
APM 533 Mathematical Population Biology I
APM 534 Mathematical Population Biology II
APM 535 Mathematical Models in Medicine
BIO 517 Uncertainty & Decision Making
BIO 539 Computing for Research
BIO 543 Molecular Genetics and Genomics
BIO 545 Populations: Evolution Genetics
BIO 546 Principles of Human Genetics
BIO 552 Developmental Genetics
BIO 564 Cellular Physiology & Signaling
BIO 591 Topic: Sociogenomics
BIO 591 Topic: Grant Writing
BIO 591 Topic: Readings in Evolutionary Medicine
BIO 598 Topic: Functional Biogeography
BIO 598 Topic: Non-coding RNA
BIO 598 Topic: The RNA World
BIO 691 Topic: Genetics and the Law
CSE 510 Database Management System Implementation
CSE 515 Multimedia and Web Databases
CSE 535 Mobile Computing
CSE 545 Software Security
CSE 551 Foundations of Algorithms
CSE 561 Modeling and Simulation Theory and Application
CSE 564 Software Design
CSE 565 Software Verification/Validation/Testing
CSE 566 Software Project/Process/Quality Mgt
CSE 569 Fundamentals of Statistical Learning & Pattern Recognition
CSE 571 Artificial Intelligence
CSE 572 Data Mining
CSE 573 Semantic Web Mining

CSE 575 Statistical Machine Learning
*CSE 576 Topics in Natural Language Processing
*CSE 591 Topic: Data Visualization
CSE 598 Topic: Database Management
*CSE 598 Topic: Information Retrieval, Mining, and Integration
*CSE 691 Topic: Logical & Distributional Semantics of Natural Language
*CSE 691 Topic: Advanced Topics on Social Media Analysis
DCI 691 Topic: Seminar on Writing Research
DCI 707 Scholarly Practices Seminar: Proposal Writing
DCI 791 Topic: Scholarly Writing
EVO 598 Topic: Software Carpentry
GIS 598 Topic: GIS Methods for Non-Majors
GIS 598 Topic: Location Analysis Modeling
GIS 603 Spatial Statistics and Modeling
HCD 511 Health Economics and Policy
HCR 561 Responsible Conduct of Clinical Research
IEE 505 Information Systems Engr
IEE 520 Statistical Learning for Data Mining
IEE 547 Human Factors Engineering
IEE 572 Design Engineering Experiments
IEE 578 Regression Analysis
LIN 514 Syntax
MAT 513 Graph Analysis
STP 505 Bayesian Statistics
STP 530 Applied Regression analysis
STP 533 Applied Multivariate Analysis
STP 540 Computational Statistics
STP 598 Topic: Machine Learning and Deep Learning
STP 598 Topic: Mixed Models
TWC 514 Visualizing Data & Information
TWC 544 User Experience

*Requires program director review and approval in order to apply to iPOS.

Note: Some courses may require permission to enroll.