Cytology, 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.

For more information on our commitments to inclusive excellence, visit: https://chs.asu.edu/why-chs/inclusive-excellence.

Contents

Introduction

Welcome

Welcome to the Master of Science in cytology degree program at Arizona State University!

We are excited you have selected the Cytology, MS degree and the faculty and support staff are committed to your success in this program. This program is designed to provide you with a comprehensive understanding of cytology practice through a combination of engaging coursework, hands-on learning, and practical experience. The curriculum incorporates the latest advancements in the field of cytology ensuring that students learn the most current practices in diagnostics and technology. You will embark upon a challenging but enriching course of study where theory meets practice so that you are fully prepared for a rewarding career in the field of cytology.

This handbook supports your success in the program in several ways. It provides shared expectations for both faculty and students. It also outlines the standards and policies set by the College of Health Solutions and the Graduate College. As a graduate student, it is your responsibility to read this handbook and use it as a reference as you navigate through the degree program. Please contact us with questions if any of the policies or procedures seem unclear.

As program director of the Master of Science in cytology program, it is a privilege to support you on your educational journey. I speak for the entire graduate faculty in reiterating our commitment to your success and we look forward to working with you to complete your graduate degree in Cytology.

Arlixer Colman, PhD, CT, MB(ASCP)

Program Director, MS Cytology

Vision and mission

The Master of Science in cytology provides students with a comprehensive knowledge base and skill set to enter the field of cytology. The faculty in the cytology program are committed to providing an engaging academic and experiential curriculum that fosters learning in the cognitive (knowledge), psychomotor (skills) and affective (behavior) learning domains in the field of cytology. In support of ASU's mission, our mission is pursued in an environment that values the individual strengths and diversity of our students and in which we strive to meet a growing need for qualified cytologists in healthcare to serve the surrounding community.

Program overview

The MS in cytology program provides students with a comprehensive understanding of cytology practice through a combination of engaging coursework, hands-on learning, and practical experience. The curriculum encompasses the whole discipline that includes biomedical disciplines such as molecular diagnostics, microbiology, immunology, in addition to cytology, histology, molecular pathology, and digital pathology. The curriculum also integrates companion technologies that cover topics such as molecular diagnostics and digital pathology for advanced diagnostic interpretation, alongside comprehensive training in laboratory operations and management. Interactive tools and real-world applications such as interactive activities, digital microscopy, and in-the-lab learning all work in coordination to introduce and reinforce cytological theory and practice.

At the completion of the Master of Science degree in cytology, a graduate will have acquired an understanding of major cytological concepts and core competencies. Upon completion of the program, the student must have successfully completed the following cognitive (indicated below as "C"), psychomotor (indicated below as "P"), and affective (indicated below as "A") competencies to enter the profession. The list below provides more information on the 7 competency categories that graduates of this program are expected to demonstrate:

1. **Evaluation and interpretation**
   a. Screening Tests: Cervicovaginal (GYN)
   b. Diagnostic Tests: Specimens to include but not limited to fluids (e.g., urine, body cavity, pericardial, cerebrospinal fluid, and anal specimens), Fine Needle Aspiration (FNA), washes, brushes, cell blocks, small sample diagnostics, and touch preparations.

2. **Laboratory techniques**
   The ability to explain and apply the basic principles for specimen collection, acceptance, and rejection (C).

   The ability to utilize the microscope or other technologies to properly visualize the specimen for systematic morphologic review and interpretation with knowledge of proper use and care, to include troubleshooting. The student will understand the basic function of the microscope including Kohler illumination and techniques for polarization (P).

   The ability to describe the process of gross examination of small biopsy specimens according to established laboratory protocols under pathologist supervision and submit tissue for preparation of microscopic slides, including (C).

3. **Laboratory operations**
   The ability to explain quality control and quality assurance requirements of applicable accrediting/regulatory agencies including, but not limited to, requirements related to competency assessment and proficiency testing.

   The ability to describe and recognize the application of Information Systems (e.g., Electronic Health Record, Laboratory Information System) including, but not limited to, viewing patient history, entering results, and signing out cases.

4. **Companion technologies**
   The ability to explain the theory, principles, and indications for tests in cytology / pathology for (C). Examples include Polymerase chain reaction (PCR), Next-Gen Sequencing (NGS), In situ hybridization, Immunohistochemistry, and special stains, telepathology, and digital image-analysis.

   The ability to incorporate the findings and clinical significance of results in cytology / pathology reports under the supervision of the pathologist for (C).

5. **Evidence-based medicine**
   The ability to critically evaluate medical literature for its pertinence and reliability.

6. **Professional development/ professionalism**
   Knowledge of the consequences of specimen evaluation on patient management.

Knowledge of the ethical role and responsibilities of the Cytologist by practicing honesty and integrity in professional duties and the principles of good professional relationships with patients, peers, staff, faculty, and the public.

The ability to explain the importance of continuing education for maintenance of ongoing competence.

7. **Communication and teamwork**
   The ability to understand and respect diversity, equity, and inclusion in the workplace and the impact it has on team function.

   The ability to work effectively as a member of a healthcare team by communicating effectively with physicians, other health professionals, and health related agencies.

The MS Cytology program emphasizes technical expertise, critical thinking, and ethical standards that are essential for professional practice. Graduates are prepared to excel in both clinical and research environments to address critical healthcare needs with precision and innovation.

This online program can be completed in 2.5 years. Students will engage in academic and hands-on learning through:

- Asynchronous online courses, including virtual labs: Students theoretically learn anatomy, physiology, histology, and cytopathology of six major body systems and sixteen additional body sites. Theoretical introduction to advanced practices in the cytology profession, such as small biopsy grossing, ancillary testing, and digital pathology, is provided.

- Foundational clinical practicum: During an in-person, hands-on clinical experience, students complete the clinical components necessary to participate and practice skills, such as slide screening, FNA observations, and other advanced cytology laboratory techniques.

- Academic and professional portfolio: Students engage one-on-one with a faculty member to synthesize their cytology theory and clinical experience. This portfolio enables students to showcase their proficiency and serves as a valuable tool for future career advancement and professional development.

Potential and current students are encouraged to review Tips for Success in the MS Cytology program (see Appendix D).

Students must complete an accredited cytology program to be eligible to sit for a national certification. Additionally, a student's degree completion date must be on or after the program has achieved initial accreditation status to fulfill state board requirements and to be eligible for the national certification examination. **The ASU MS Cytology is a new program pending initial accreditation.**

ASU programs that may lead to professional licensure or certification are intended to prepare students for licensure or certification in Arizona. Completion of an ASU program may not meet educational requirements for licensure or certification in another state. For more information, students should visit the ASU professional licensure webpage.

Program contacts

Program director: Arlixer Coleman, arlixer.coleman@asu.edu

Medical director: Kaitlin Sundling, kaitlin.sundling@asu.edu

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Graduate support coordinator: Erica Hallum, chsgrad@asu.edu

Program faculty: see Appendix A

Admission

Admission to the Cytology, MS is available for Fall and Spring 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: Online
- Start terms: Fall, Spring
- Time to completion: 2.5 years

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 in a health, STEM or related field.

Employment – Applicants must be currently employed in a CLIA certified or CAP accredited clinical laboratory. The clinical laboratory site must have an affiliated accredited cytology laboratory with certified and licensed cytotechnologists and pathologists working in daily practice, where students will participate in their clinical practicum. The student must be able to receive training in basic microscopic tasks such as manual review of a peripheral blood smear or urine sample. A mentor or supervisor should be available approximately 2 hours per week and as needed to discuss laboratory-relevant program assignments and reflections. For more information on the lab and site supervisor requirements, see Appendix C.

Personal statement or letter of intent – One- to two-pages; Should include the applicant's interest in the program, what they expect to learn from the program, their professional goals, and a short description of their background in the sciences.

Employer support letter – A letter from the applicant's employer supporting the applicant's use of clinical laboratory space and an eligible on-site supervisor for the practicum experience.

References – Contact information for two 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).

Technical Standards – Color blindness makes it challenging for some individuals to differentiate between some colors, shades of colors or see color brightness, and it may diminish observational skills required for laboratory testing. Individuals with color blindness can be trained to differentiate and characterize the colors of stains, reagents, microscopic cells, labels, biologic devices or any device or printout used in diagnostic laboratory procedures. Applicants can view a complete listing of technical and essential functions required in Appendix B.

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

All coursework must be taken during the Cytology, MS program. Pre-admission and transfer coursework are not accepted.

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 Cytology, MS has a program fee pending ABOR approval.

Financial assistance

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

- College of Health Solutions scholarships
- Graduate College fellowships
- 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

Curriculum and graduation requirements

Program requirements

The Cytology, MS is comprised of 44 credits, including a portfolio.

Required Core (37 credits)

- BMD 510 Current Perspectives in Biomedical Diagnostics (3)
- BMD 513 Principles of Diagnostic Technology: Immunoassays (4)
- BMD 514 Principles of Diagnostic Technology: Molecular Diagnostics (3)
- BMD 570 General Principles of Cytology and Pathology (3)
- BMD 571 Microscopic Evaluation (3)
- BMD 572 Laboratory Operations and Preparation (3)
- BMD 601 Fine Needle Aspiration Cytology (3)
- BMD 602 Effusion Cytology (3)
- BMD 603 Gastrointestinal Cytology (3)
- BMD 604 Gynecologic Cytology (3)
- BMD 605 Pulmonary Cytology (3)
- BMD 606 Urinary Cytology (3)

Other Requirements (7 credits)

- BMD 500 Research Methods (2)
- BMD 580 Practicum (5)

Culminating Experience (0 credits)

- portfolio (0)

Note: No 400-level coursework may be used toward the requirements of this program.

Technology requirements

The Cytology, MS program didactic coursework is offered through an online medium. Students need a high-resolution monitor to enable viewing and magnifying slides and images. Additionally, students need a very stable internet connection to view media associated with the program.

Practicum

The clinical practicum is a two-semester, comprehensive hands-on training program that combines cytology theory with practice. During the practicum, the student is paired with a site preceptor/supervisor who will work directly with the student. The designated site preceptor/supervisor must be a certified and licensed cytologist and/or faculty member.

During the program admissions process, students are required to provide a letter from their employer that provides support for the student to engage in the practicum experience at an employer-owned lab that meets the program's requirements (see Appendix C). Students must identify a site preceptor/supervisor who is a certified cytologist or certified cytotechnologist on staff to serve as the primary day-to-day contact for the student and provide support for the student's hands-on work with tissue samples, slides, and lab equipment. **Students must notify the program director and graduate**

support coordinator of any change in employment, change in residence (e.g. moving to another state), or change in planned practicum site as soon as possible.

Students will enroll in 2 credits of BMD 580 Topic: Cytology I in the first term of the practicum and enroll in 3 credits of BMD 580 Topic: Cytology II in the second term of the practicum. Students will receive either a Y (satisfactory) or an E (fail) grade for BMD 580. A Y grade is required for the course to be applied toward the student's iPOS.

BMD 580 Topic: Cytology I provides an in-depth introduction to essential cytological techniques, focusing on the foundational skills necessary for effective laboratory practice. Students learn to assist with specimen collection, perform specimen preparation methods including basic and special staining techniques, and enhance microscopy and diagnostic skills. During this course there is an emphasis on accurately identifying and diagnosing patient cases while developing a competency standard of screening pace. Utilizing critical thinking and high-level analytical skills to accurately identify and highlight cellular morphology that ranges from normal to abnormal is an expectation in this course. The use of Quality control practices and Laboratory Information Management Systems (LIMS) are integral components of this course. Professional communication, accurate documentation, and adherence to safety protocols are also key elements, ensuring that students are well-prepared for future clinical and research environments.

BMD 580 Topic: Cytology II builds upon the foundational skills acquired in Cytology I, offering advanced training in cytological techniques for MS degree students, including the continuation of supervised experience in a clinical setting. Students will continue to deepen their diagnostic skills when screening cases from various body sites. Clinical case studies and problem-solving sessions are provided to enhance diagnostic abilities and critical thinking. This course delves into specialized staining and cytochemical methods, including immunocytochemistry and in situ hybridization, as well as advanced microscopy techniques such as fluorescence and electron microscopy. The course also covers cytogenetic and molecular cytology techniques, equipping students to correlate cytomorphologic and clinical findings with karyotyping, FISH, PCR, and next-generation sequencing. Lastly, ethical and legal considerations in cytology, as well as research methodologies and current trends in the field, are topics of discussion in this course.

Pre-practicum deadlines

Hands-on educational experiences conducted with outside partners require the completion of an affiliation agreement. The affiliation agreement is a legal document that must be on file for a student to earn credit for a practicum or 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. ASU will contact the site to complete the affiliation agreement.

To ensure ample time for the affiliation agreement and other potential paperwork to be complete in time for a student to start their practicum in the desired term, students should **confirm their planned practicum site** with the graduate support coordinator by the following deadlines:

- Fall start: February 1st
- Spring start: June 1st
- Summer start: December 1st

During the practicum experience

Students who are pursuing a practicum with an approved site, with a secured affiliation agreement, will be administratively enrolled in the appropriate BMD 580 topic course. The practicum experience contains two main components:

- A minimum number of hands-on hours at the clinical laboratory
  - 90 hours for BMD 580 Topic: Cytology I
  - 135 hours for BMD 580 Topic: Cytology II
- Academic work assigned, including site supervisor evaluations, review activities and practical exams

The site preceptor/supervisor will oversee the student's work in the clinical laboratory. An assigned faculty member will serve as the instructor for the BMD 580 course and be the student's ASU contact for the practicum experience.

Review activities and practical exams

Cytology didactic review activities and practice exams are required portions of the clinical practicums in a non-credit online environment format. Students are expected to fully participate in these review activities and practice exams. Students must demonstrate appropriate performance on these activities and practice exams, with a score of 80% or higher on practice exams in all areas. Additional review activities may be assigned as needed to assist students with achieving field-level competencies.

Performance and competency requirements

Specific slide screening performance and clinical skill competency requirements must be met before students can receive a passing grade in the clinical practicum courses. Students who fail to meet these performance and competency requirements during the practicum will be required to collaborate with the program director and their site preceptor/supervisor to create and execute a plan for developing the required skills in order to graduate with the MS Cytology degree.

Health and training requirements

Students must provide documentation of various health and training requirements prior to the initiation of the clinical practicum. Students must be in good standing within the program as well as with their clinical employer throughout their enrollment in the program including clinical practicum courses.

COVID vaccination policies

Students who participate in an internship, rotation, observation, applied project, or other experiential learning opportunity with a clinical partner are required to comply with the site's policies related to vaccinations for common communicable diseases.

Confidentiality and HIPAA policy

In healthcare, it is a professional duty to preserve the confidentiality of patients at all times. Moreover, the Health Insurance Portability & Accountability Act of 1996 (HIPAA) requires all health care records and other individually identifiable health information (protected health information) used or disclosed in any form, whether electronically, on paper, or orally, must be kept confidential. This federal law gives the patient significant new rights to understand and control how health information is used. HIPAA provides penalties for covered entities that misuse personal health information. The MS Cytology program and clinical laboratories that work in conjunction with the program fully expect that all students and employees will comply with HIPAA. All MS Cytology students should receive HIPAA training annually as

part of workplace annual trainings and are required to sign a workforce confidentiality agreement prior to starting clinical practicum. Students who violate HIPAA guidelines will be subject to disciplinary action, up to and including a failing grade for the clinic rotation and/or dismissal from the MS Cytology Program. Please take this seriously. You must NEVER have patient information on your personal data devices. Do not take-home protocols or other records that contain patient data. Furthermore, patient cases should not be posted on social media platforms.

Portfolio

The portfolio is a non-credit experience taken under the guidance of the program director. Students are required to submit written introduction and discussion sections that bookend the submission of the following components, to be written in AMA style:

- Compilation of Accomplishments: Students will gather and organize at minimum 3 notable activities or academic accomplishments (e.g. projects, reports, research papers, presentations, publications, etc.) completed during the program that demonstrate their mastery of core concepts and skills in cytology.

- Clinical Practicum Analysis Paper: A comprehensive paper that synthesizes and analyzes the student's experiences in the final wet lab/clinical practicum. This paper is external to the requirements of the practicum experience and will detail the skills and knowledge gained, challenges faced and overcome, and insights into the practical applications of their training.

- Updated Curriculum Vitae (CV): An updated CV that reflects their academic achievements, laboratory experiences, relevant work history, and any professional certifications or memberships acquired during the program.

The discussion section will address the student's career aspirations, draw connections between their accomplishments and hands-on experiences to their professional goals, and outline a strategic plan for continuing education in the field of cytology.

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 recommended plan of study. 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.

Sample Plan of Study, Spring Start

Term/ Session	Course	Credits
Year 1 - Spring A	BMI 570 General Principles of Cytology and Pathology	3
Year 1 - Spring B	BMI 572 Laboratory Operations and Preparation	3
Year 1 - Summer C	BMD 571 Microscopic Evaluation	3
Year 2 - Fall C	BMD 513 Principles of Diagnostic Technology: Immunoassays	4

Year 2 - Spring A	BMD 514 Principles of Diagnostic Technology: Molecular Diagnosis	3
Year 2 - Spring B	BMD 604 Gynecologic Cytology	3
Year 2 - Summer C	BMD 510 Current Perspectives in Biomedical Diagnostics	3
Year 3 - Fall A	BMD 605 Pulmonary Cytology	3
Year 3 - Fall B	BMD 603 Gastrointestinal Cytology	3
Year 3 - Spring A	BMD 606 Urinary Cytology	3
Year 3 - Spring B	BMD 601 Fine Needle Aspiration Cytology	3
Year 3 - Summer C	BMD 500 Research Methods	2
	BMD 602 Effusion and Cerebrospinal Fluid Cytology	3
Year 4 - Fall A	BMD 580 Topic: Cytology I	2
Year 4 - Fall B	BMD 580 Topic: Cytology II	3

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.

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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.

The Cytology, MS program requires students to earn passing grades in all major assessments, including final exams, final projects, and the diagnostic evaluation average within each course. If a student receives two or more failing grades in any of these three components, the student may be placed on academic probation and may be required to repeat the related course(s).

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):

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 Cytology, MS program requires the practicum courses to be complete with a grade of "Y" and all other courses should be complete with a grade of B- or higher. Up to two courses with a grade of "C" may be applied toward the iPOS, with program director approval. Students who earn a C or lower in a course may be required to repeat the course and earn a B- or better in order to apply the course toward program requirements.

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. Remedial work may be assigned in areas where there is a gap in achievement of competencies.

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.

ASCP exam eligibility verification

Pending program accreditation, graduates will be eligible to take the American Society for Clinical Pathology Board of Certification examination to become a certified cytologist. Graduates may need to complete additional requirements based on the licensure requirements of the state in which they plan to work. See the ASU licensure website for more information.

American Society for Clinical Pathology (ASCP) board exam preparation and review activities will be required in a non-credit online environment during the clinical practicum. The program director will verify a student's ASCP Board of Certification exam eligibility only after the student has demonstrated appropriate performance on these preparation and review activities, with generally 80% or higher on practice exams in all areas. Additional review activities may be assigned as needed.

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.

The Cytology, MS program requires students to review and adhere to the principles outlined in the Generative AI Guide (see Appendix F).

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.

All students are expected to abide by a code of ethics (see Appendix E). As developing healthcare professionals, all students must show appropriate respect for patient safety, privacy, and autonomy, both in official program activities and in any outside activities (including social media use). Students must

communicate clearly and professionally with all members of the ASU educational environment and with clinical teams.

Within clinical settings, students must recognize the limits of their training and experience, proactively seeking assistance from their supervisor whenever it may be needed.

Any clinical incidents where the students may have been involved in lapses involving patient safety, patient privacy, or professional or ethical behavior must be reported to the program director as soon as possible. Students who are removed from a clinical site may not be able to complete the program.

Graduate students who demonstrate behaviors or characteristics which make success in their related fields questionable, including conduct related to any of the items above, 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.

Student support resources

Academic program support

Admitted students will be notified via email of the classes to be taken during their first term. Refer to the Registration policies section for information on enrollment, withdrawal, and deadlines. During orientation, students will attend an information session regarding and overview of the program, the sequence of classes, and the practicum experience. Students will meet with the program director and graduate support coordinator during orientation week. Attendance at orientation is required.

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 Student Government
- 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

ASU College of Health Solutions Arizona State University

chsgrad@asu.edu | 602-496-3300

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 advisor, 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

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

Arlixer Coleman, PhD, CT, MB(ASCP) (profile) – cytology practice, human aging, angiogenesis in cancer, environmental effects on health, and disparities in healthcare

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

Travis Schlappi, PhD (profile) – engineering; microfluidics; developing point-of-care medical diagnostics LMIC settings; urinary tract infections; and antibiotic susceptibility testing

Kaitlin Sundling, MD, PhD (profile) – machine learning, digital pathology, liquid biopsy, standardization in cytopathology practice, preanalytical factors in cancer biomarkers, and public health

Kristen Will, PhD, PA-C (profile) – health professions education, health care leadership

B: Technical standards

The Master of Science program in cytology is committed to inclusive excellence and educating students who will make the population of health care professionals a true representation of our diverse community.

The following technical standards are not intended to deter any candidate for whom reasonable accommodation will allow the fulfillment of the complete curriculum. Program applicants and admitted students with disabilities are confidentiality reviewed to determine whether there are any reasonable accommodations that would permit the individual to satisfy the program standards. The following technical standards are required of all students enrolled in the Cytology, MS program:

Theme	Essential Functions	Example of Required Activities
Observation	Candidates must be able to observe demonstrations and participate in hands-on learning in the classroom, laboratory and clinical settings. Candidates must be able to acquire information from written documents and computer systems.	• Reading small, fine print in all environments, including low-light conditions for accurate patient identification. • Differentiate basic colors and their hues in relation to cellular components.
Communication	Candidates must be able to communicate effectively, sensitively, and efficiently with patients, families, health care professionals and faculty. Candidates must be able to acquire the patient's medical history in a timely manner, interpret non-verbal information, and establish a therapeutic rapport with patients. Candidates are also required to record information accurately and clearly; and communicate efficiently in English with other health care professionals.	• Sufficiently communicate in English to retrieve information from literature, computerized databases and lectures to communicate concepts on written exams and patient specimens. • Communicate effectively and efficiently with patients, students, staff, faculty, and all members of the healthcare team during all learning experiences. • Fluently read and comprehend the English language necessary to understand caregiver's written and/or electronic orders and understand any signage related to safety and patient care. • Interact with healthcare faculty in person and via the telephone.
Motor Skill & Mobility	Candidates must have sufficient motor functions that they are able to execute movements required to provide general care and treatment to patients in all health care settings within a specified amount of time.	• Full range of motion allowing for gross movements within confined spaces such as bending, stooping, squatting, lifting and pushing. • Fine motor skills, steady hand function and hand-eye coordination.

Interpersonal Behavior & Social Skills	Candidates must exhibit the emotional stability required for full utilization of their intellectual abilities, which includes, but is not limited to, the exercise of good judgment, and the prompt completion of responsibilities associated with the care of patients. Candidates are expected to exhibit integrity, honesty, professionalism, compassion, and display a spirit of cooperation and teamwork.	• Tolerate physically, mentally and emotionally demanding workloads, function effectively under stress, adapt to changing environments, display flexibility and learn to function in the face of uncertainties inherent in the clinical problems of patients. • Express compassion, integrity, concern for others, interpersonal skills, interest, and motivation when working with patients, staff and faculty. • Accept feedback and respond by appropriate modification of behavior. • Show genuine empathy, understanding, interest and professionalism for patients.
Cognitive & Intellectual	Candidates must be able to assimilate detailed and complex information presented in both didactic and clinical coursework. Candidates are expected to possess the ability to measure, calculate, reason, analyze, synthesize, and transmit information. Candidates must also command the ability to think critically, possess problem-solving and organizational skills necessary the classroom, laboratory and clinical setting.	• Learn through a variety of methods including, but not limited to, classroom instruction, small group, problem-based learning groups, team and collaborative activities, individual study, preparation and presentation of reports simulations, and through the use of technology. • Organize time independently and manage multi-faceted demands and schedules. • Comprehend three-dimensional relationship and to understand spatial relationships of anatomic structures.
Environment	Candidate must have the sensory and physical well-being that will allow an individual to tolerate occasional distressing and/or disturbing conditions that may be present in a clinical setting.	• Acclimate to various noises which may range from distractions to annoyances. • Function effectively (by completing the given task) in emergent and stressful situations.
Computer & Technological Skills	Candidate must be able to utilize electronic technology in didactic, laboratory and clinical environment.	• Demonstrate basic computer functions such as data entry, printing and ability to function in multiple screens simultaneously.

Computer & Technological Skills (cont.)		• Learn and understand the software technology utilized in the health setting. • Demonstrate the ability to fully utilize computer equipment such as keyboard, mouse and bar-code scanner necessary to enter diagnoses and document any discrepancies.
Problem Solving/ Organizational Skills	Candidates must think critically, and demonstrate problem-solving and organizational skills necessary in providing quality patient care.	• Understand the relationship between patient health status/condition and requested collections. • Effectively troubleshoot/adapt when necessary. • Understand additional resources available, where to locate them and how to use them.
Ethics	Candidates must adhere to the college's mission, vision and value statements regarding patient care.	• Recognize the importance of performing duties in accordance with policies and standard operating procedures. • Accept the expectation of maintaining patient confidentiality, both from a legal standpoint and a humanitarian perspective.

C: Practicum requirements and expectations

Clinical site expectations:

- The clinical practicum site must be a CLIA approved or CAP accredited cytology laboratory with certified and licensed cytologists (cytotechnologists) and pathologists working in daily practice.
- The clinical practicum site must ensure that there are appropriate laboratory facilities, equipment, and safety protocols in place to fully support the education of the ASU MS cytology students.
- The clinical site must confirm that cytology cases are available to support student learning. It is not a requirement that available slides encompass all body sites.
- The ASU MS Cytology program will provide recommended slide review counts prior to the start of the clinical laboratory practicum and have a plan to supplement resources when necessary.
- An ideal clinical laboratory practicum site provides opportunities for gynecologic cytology, body fluids, and fine needle aspiration screening, attendance and participation on ROSE procedures, participation in cytopreparation, and attendance at clinical case sign out with pathologists.
- Within the clinical practicum experience, students must participate in a minimum of 4 hours per day of directly supervised learning time to include at least 1-2 hours of screening time.
- Educational time counted toward the clinical practicum requirement must not include performance of other job duties.
- For financial matters attributed to the clinical practicum, the MS Cytology student's employer and student must discuss if any assistance for relocation to the site of the cytology laboratory is offered, such as financial support, provided housing, or other resources.

Site preceptor/instructor expectations:

- The clinical laboratory practicum site must ensure that the assigned preceptors/supervisors are certified and licensed with experience in clinical cytology.
- The clinical laboratory practicum site must confirm that preceptors/supervisors are current with cytology practices, including new diagnostic technologies and techniques.
- The clinical laboratory practicum site preceptor/instructor must have adequate time for direct supervision of the student, and in the event of their absence, there must be a site approved alternate preceptor.
- The clinical laboratory practicum site leadership must ensure that the designated preceptors/supervisors have the time allotted to work with and support the ASU cytology program student daily.
- Likewise, the clinical laboratory practicum site leadership must ensure that designated preceptors/instructors have time allotted to work and periodically meet via zoom with the MS Cytology program faculty as needed.

Student expectations:

- Demonstrate an understanding of cytological theory, policies, and procedures.
- Actively participate in the educational process by displaying preparedness and engagement in the clinical laboratory learning environment.
- Accuracy combined with the realization that timely reporting of results also contributes to patient care, at a minimum, the student should manually evaluate an average of 7 cervicovaginal slides per hour (or average of full slide-equivalents per hour for computer-assisted review).

- Consistently meet the field entry level requirement of screening and making an accurate diagnosis. High screening accuracy and speed are expected to be attained by clinical practicum II.
- Maintain and respect patient confidentiality so, adhere to HIPAA rules and regulations.
- Adhere to and abide by all safety practices and policies outlined set forth by the clinical laboratory site.
- Follow written and oral instructions without distractions.
- Effectively manage time and resources wisely.
- Complete and submit required program assignments on time.
- Abide by the ASU graduate school honor code.
- Maintain a professional and congenial demeanor.
- Cooperatively work with preceptors, MS Cytology faculty, peers, and health care team members.
- Communicate clearly, concisely, and with understanding both written and orally.
- Respond to constructive criticism and feedback in a positive manner.

D: Tips for success

Establishing and Maintaining a Sustainable Routine

- *Prioritize Rest and Self-Care*: Adequate sleep, physical activity, and nutrition are important in laying the groundwork for successful learning. Downtime for fun, relaxation, and spending time with friends and family is also important. It's worth the effort to work toward a sustainable balance during this program so that you can carry these habits into your future work.
- *Create a Sustainable Routine*: Set aside time regularly to check class communications, study, and work on assignments. Try to minimize outside distractions when you are studying or working on assignments. Take advantage of small chunks of time, and remember to take breaks during long periods of focused work.
- *Create a Consistent Study Schedule*: Develop a study schedule that allows for in depth study of challenging topics and regular review.
- *Seek Help Early*: Our courses are designed to be engaging and challenging but not overwhelming. If you are having difficulty managing your time effectively, do not hesitate to talk to a program instructor or advisor for tips and to request additional time to complete program work, if needed.
- *Life Events Happen*: We want all students to succeed, and you can still be successful even if you are experiencing a major life event that may pull your time and energy away from academics. We can help you navigate what kinds of flexibilities and approaches may help, in addition to resources that are available through ASU.

Recognizing and Addressing Challenges

- *Feedback Helps You Improve*: In this program, all feedback is provided with the intent to help you improve, not to criticize your efforts or abilities. Cytology training provides a safe space to learn and practice challenging skills and concepts, before there is any patient impact.

- *Identifying Strengths and Areas for Growth*: Recognize areas you feel confident in and areas you may find challenging. Use objective evidence in assessing your weaknesses when possible, which is available from course assignments.

- *Lean into Areas of Challenge*: The more you are actively engaged in difficult areas such as asking questions in class discussions, following up on difficult topics with peers and instructors, and attending office hours to get additional input on challenging issues, the more you will get out of the program.

- *Seek Additional Feedback*: If you are feeling unsure about how to proceed with program work or whether you are progressing in the way that it should, do not hesitate to reach out to program instructors, the Program Director, or the Medical Director for extra feedback.

- *Recognize Long-Term Improvement*: You can expect that as your skills improve, your scores on assignments may not necessarily increase in a linear fashion. It is not unexpected to see variability from one assignment to the next, both because of the nature of learning these challenging skills and concepts and because our courses progress quickly. When assessing your progress, take both the big picture and the smaller details into account.

- *Stay Adaptable*: Cytology can involve challenging cases that require flexible problem-solving. Prepare for continuous learning, as each course presents unique challenges that reflect the breadth and diversity of cytologic specimens and cytologist's daily work.

Peer Support and Building a Study Network

- *Connecting with Peers*: In addition to class discussions, you may use the class Slack space to connect with peers anytime to discuss challenging topics, work on homework together (check assignment instructions), and form study groups. Peer discussion can help in comparing diagnostic impressions and understanding different perspectives.

- *Meet Regularly with a Study Group*: If you are interested in forming a study group and want help connecting with other students, let a program instructor know. You are welcome to form your own study groups and group chats (Slack is a recommended platform).

- *Consider Co-Working Sessions*: Sometimes students find online co-working sessions to be a helpful way to stay focused and be in community with others while completing program work. This can be accomplished by Zoom or other virtual meetings, or by scheduling a time to be available for chat on Slack. You may prefer to work quietly or share background music. Incorporate breaks to move or chat about things outside of coursework.

Seeking Support and Guidance

- *Instructors and Advisors*: Reach out to your instructors for help with difficult concepts or feedback on cases. Faculty members have extensive experience and can offer specific guidance on challenging areas.
- *Clinical Supervisors and Laboratory Staff*: Your clinical supervisor can help in case your workload may pose a challenge in completing program requirements, and also in providing career advice in the clinical laboratory. The Cytology Program Director can help with advocating for your academic needs in discussions with your supervisor, as needed. Staff in your laboratory can help with understanding the real-world importance of laboratory work.

We also recommend that you seek support from ASU-specific resources listed elsewhere in this manual regarding academic success, well-being, and life events. These resources and strategies, combined with a proactive approach, can enhance your experience and success in a cytology program.

E: Cytology code of ethics

Guidelines for ethical behavior and general principles for cytology practice are as follows as ascribed by the professions are based upon the following tenets:

- **Patient confidentiality:** Protecting patient information and test results as confidential except when legally required to disclose.

- **Accurate diagnosis:** Striving to provide accurate and timely diagnoses based on careful examination of samples and appropriate interpretation.

- **Non-discrimination:** Providing quality services regardless of a patient's race, gender, ethnicity, or socioeconomic status.

- **Collaboration:** Working cooperatively with other healthcare professionals to ensure optimal patient care.

- **Competency:** Maintaining and updating professional knowledge and skills to ensure high quality cytology practice.

- **Professional conduct:** Adhering to ethical principles, avoiding conflicts of interest, and reporting any concerns about potential misconduct.

Cytologist Oath

Being thoroughly cognizant of my commitment to the practice and delivery of exemplary services in Cytology, I affirm and insure my dedication to the performance of my professional duties with accuracy, thoughtfulness, and care. Recognizing that the welfare of each patient is a principal element of my profession, I shall approach each professional task with the utmost reliability, care, and application of the highest interpretive standards. I will work collaboratively as a member of the healthcare team and shall hold inviolate the trust placed in me by patients and the community.

F: Generative AI guide

Generative AI has great potential to enhance teaching, learning, and clinical work; however, this technology has significant limitations. Use this guide to help navigate appropriate use of generative AI in educational, scientific, and medical contexts. Generative AI platforms, such as ChatGPT, should not be used as a substitute for your own judgment or for provided course materials.

This technology continues to evolve. As of November 2024, no generative AI platforms possess specific expert knowledge within pathology and cytopathology. This guide may be amended over time as changes in the technology occur, and as standards and best practices emerge within pathology, cytopathology, and education.

Fact Checking is Always Needed

All information outputted by a generative AI platform must be fact checked against authoritative sources. Interactive chat features are very attractive such as for self-quizzing, but results must be scrutinized, especially as your knowledge about cytology is still developing. Notably, generative AI tends to be susceptible to confirmation bias or "telling you what you want to hear." Many other biases, including biases that may be harmful to people or communities, are possible. It is not always possible to identify the source of statements derived from generative AI. While we recommend that you consult course materials and other authoritative sources first, you can always consult an instructor if you are unsure of the scientific accuracy of information.

Keep Private Information Out of Unapproved Platforms

Many generative AI platforms are available, both for free and with paid subscriptions. Additionally, software may have integrated AI tools that may help in making suggestions or performing functions, such as image editing. Generative AI platforms and other software often do not protect privacy, and data entered into free versions of ChatGPT and other tools is often not kept private but used for training the AI algorithm.

Privacy rules and recommendations:

- For course assignments, we recommend using ASU-approved software for security purposes.

- For your own privacy, we do not recommend entering any personal identifiable information into generative AI platforms.

- Do not enter course materials (beyond the learning objectives) or copyrighted materials into generative AI platforms.

- Do not enter protected health information into any generative AI platform without approval (such as under an Institutional Review Board approved study, using the approved platform).

- Protected health information (anything potentially identifiable from a patient) should always be handled according to your clinical site's requirements.

Cite and Use Generative AI appropriately in Scientific Writing

This program aims to prepare you for scientific writing, including grant applications and manuscripts. Funding sources and scientific journals may have specific policies about the use of generative AI within

the writing process. Generative AI use can sometimes be detected through the use of automated tools, and may be suspected by human reviewers. You should not use generative AI in writing any final products; however, generative AI use may be helpful within the writing process, such as in brainstorming ideas, creating an outline, or identifying gaps within your thinking about a topic. Similar to working with scholarly sources, carefully organizing your notes, materials, and finished writing is important in ensuring that AI-generated text is not inadvertently used in an assignment submission or other scientific writing.

Professional Written Communication is Best Written by Humans

It is important that professional communications be courteous and succinct. The purpose of your communication should be clear. Generative AI does not usually help with the clarity of written communications and should not be used to generate emails or other written communications to instructors, other staff, laboratory professionals, or other students.

Instructors May Use Generative AI in Course Materials

Instructors in the Cytology Program may use ChatGPT or other generative AI tools in development of course content, including assignment instructions, questions, and explanations. All content is reviewed and edited by an expert instructor to ensure accuracy and appropriateness, and instructors take responsibility for any errors that may occur within course materials. Images that are produced by generative AI will be cited appropriately.

Student Use of Generative AI in Course Assignments is Permitted Under Some Circumstances or With Explicit Permission

Some assignments in this program may include or allow use of Artificial Intelligence (AI), including ChatGPT or related tools for the creation of text, images, computer code, audio, or other media. The instructor will inform you when, where and how you may use these tools, and provide guidance for attribution. Use of generative AI tools in any other context for assignments in this program will be considered a violation of the ASU Academic Integrity Policy, and students may be sanctioned for confirmed, non-allowable use. If at any point you have questions about what is permitted, contact the instructor to discuss *before* submitting work.

Recommended Reading

1. Sundling RJ, Sundling KE. Implications of Generative Artificial Intelligence for Cytopathology Education. The Communicator, American Society of Cytopathology, Cytopathology Program Directors Committee Newsletter. February 2024. https://cdn.ymaws.com/cytopathology.org/resource/resmgr/fellowship_program/the_communicator/2024_comm/the_communicator_february_20.pdf

2. Pantanowitz J, Pantanowitz L. Implications of ChatGPT for cytopathology and recommendations for updating JASC guidelines on the responsible use of artificial intelligence. Journal of the American Society of Cytopathology. 2023;12(6):389-394. doi:10.1016/j.jasc.2023.07.001

3. Crane GM, Gardner JM. Pathology image-sharing on social media: Recommendations for protecting privacy while motivating education. AMA J Ethics. 2016;18(8):817-825. doi:10.1001/journalofethics.2016.18.8.stas1-1608