



THE UNIVERSITY OF ARIZONA  
COLLEGE OF MEDICINE TUCSON

# Genetic Counseling Graduate Program

## Student Handbook

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## LETTER FROM THE DIRECTOR

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Welcome to the University of Arizona Genetic Counseling Graduate Program (UAGCGP). We hope that you find this handbook exciting and helpful in your journeys.

The UAGCGP is a program in the Department of Cellular and Molecular Medicine in the UA College of Medicine – Tucson and works closely with the UA Health Sciences Center for Applied Genetics and Genomic Medicine in the administration of the program. The UAGCGP builds on the strengths of a program offered by the University of Arizona from 1995 through 2005. The strengths of the program include senior leadership with outstanding course content and clinical rotations. We received Accredited, New Program status from the Accreditation Board for Genetic Counseling (ACGC) in February of 2019 and welcomed our inaugural class in the fall of 2019. Our first cohort graduated in May of 2021. Students in our program have the opportunity to work in diverse clinical settings with genetics professionals in both Tucson and Phoenix. The UAGCGP is the only genetic counseling training program in Arizona, and one of just a few in the Southwestern United States.

Our program is designed to provide a well-rounded education through rigorous and diverse academic and clinical experiences. Students who graduate from this program will be prepared to:

- Work as a member of a genetic/genomic health care team
- Interpret family and medical histories to assess the likelihood of disease occurrence or recurrence
- Provide patient counseling to promote informed personal and medical choices, as well as adaptation to the risk or condition
- Incorporate issues related to diversity, equity, social justice, and inclusiveness into professional practice
- Educate clients, clinicians and the public about genetic conditions, inheritance, testing, management, prevention, resources, and research on inherited conditions

Please contact our Program Coordinator, Kathy Ben [kben@email.arizona.edu](mailto:kben@email.arizona.edu) or myself at [quinn@pharmacy.arizona.edu](mailto:quinn@pharmacy.arizona.edu) if you have questions.

Sincerely,



Dee Quinn, MS, CGC  
Program Director, University of Arizona GCGP  
Director, Genetic Counseling Services and Clinical Genetics Education

## ABOUT THE PROGRAM

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The Genetic Counseling Graduate Program at the [University of Arizona](#) (UAGCGP) is a new graduate program offered at UArizona through the Department of Cellular and Molecular Medicine and the Center for Applied Genetics and Genomic Medicine. Graduates of this 22-month program will graduate with a Master of Science degree in Genetic Counseling, preparing them for a career in this rapidly expanding field. Our program combines classroom-directed instruction with real-world experience in the clinical setting working with practicing clinical genetics providers.

Our students benefit from UA's rich biomedical research and clinical training programs in both Tucson and Phoenix. With campuses and medical schools in both cities, students have the opportunity to train with clinicians, researchers, and experts in the field of genetics and genomic medicine.

The UA previously had a genetic counseling graduate program, which operated from 1995 to 2005 and consistently received outstanding academic reviews. Graduates of the program have gone on to successful careers in genetic counseling, working in healthcare, academia, and private industry. The GCGP has been re-established at UA with strong administrative support and significant progress in the fields of genetics and precision medicine in the UArizona Health Sciences. The Precision Health Initiative at UAHS and the Center for Applied Genetics and Genomic Medicine have pivoted the UArizona to a national leadership position in genetics and precision medicine.

### *Contact Information*

#### **Program Director**

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#### **Program Coordinator, Senior**

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### *Department of Cellular and Molecular Medicine*

The mission of the [Department of Cellular and Molecular Medicine](#) (CMM) is to provide pre- and post-doctoral, medical, and graduate education in an interdisciplinary environment through research activities, to advance knowledge of biological structure as related to function and disease from the molecular level to the whole organism. Our expertise encompasses cellular, molecular, and developmental biology, genetics, bioinformatics, toxicology, parasitology, and

neurobiology, with a strong emphasis in imaging. Our research faculty are highly collaborative and take multidisciplinary approaches to their research.

### *Center for Applied Genetics and Genomic Medicine*

The goal of the [Center for Applied Genetics and Genomic Medicine](#) (TCAG<sup>2</sup>M) is to advance the application of genetics and genomic biology to improve healthcare delivery for the people of Arizona. TCAG<sup>2</sup>M supports outstanding translational and clinical programs into the etiology of disease, and the development of new approaches to manage these conditions in the clinic. To achieve this goal, TCAG<sup>2</sup>M has created divisions that specifically advance topical areas of translational and clinical relevance.

## **WHAT IS GENETIC COUNSELING?**

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Genetic counselors are medical professionals who work as part of the healthcare team to help patients and families interpret, understand, and make decision about their genetic health. Genetic counselors work in a variety of settings, including healthcare organizations, academia, and emerging positions in commercial laboratories and companies. Furthermore, they work in a variety of clinical specialties, such as adult genetics, pediatrics, oncology, obstetrics, cardiology, public health, teratology, and pharmacogenomics.

Genetic counseling is one of the fastest growing careers in the United States. Employment of genetic counselors is expected to [grow 29%](#) from 2014 – 2024. As integral parts of the healthcare team, genetic counselors work with physicians, nurses, and other healthcare professionals to help patients and their families understand inherited genetic conditions. They are trained to expertly communicate complicated genetic health information, and they serve as key liaisons for the community to make genetic and genomic medicine more accessible to patients.

Additional resources about the genetic counseling field:

- [National Society of Genetic Counselors – About Genetic Counselors](#)
- [National Human Genome Research Institute – FAQ About Genetic Counseling](#)
- [Centers for Disease Control and Prevention – Genetic Counseling](#)
- [Genetic Alliance – Making Sense of Your Genes](#)
- [March of Dimes – Genetic Counseling](#)

## PROGRAM CURRICULUM

<b>Fall – Year I</b>	<b>Course Director</b>	<b>Units</b>
<b>CMM 518</b> – Fundamental Genetic Mechanisms	Ellis/Maggert	3
<b>CMM 585</b> - Embryology, Teratology, Birth Defects	Quinn/Stallman	3
<b>CMM 527</b> - Pathophysiology Basics – hematologic, cardiovascular and immune systems	Zavros	1
<b>CMM 528</b> - Pathophysiology of Integumentary, Respiratory, and Digestive Systems	Zavros	1
<b>CMM 529</b> - Pathophysiology of Urogenital and Endocrine Systems	Zavros	1
<b>CMM 519</b> - Introduction to Genetic Counseling	Quinn/Slayback	2
<b>GENE 670</b> - Genetics Seminar	Schaibley	2
<b>CMM 600</b> - Introduction to GC Research	Schaibley	1
<b>CMM 594</b> - Clinical Practicum	Stallman	2
<b>TOTAL UNITS, Semester 1</b>		<b>16</b>

<b>Spring – Year I</b>	<b>Course Director</b>	<b>Units</b>
<b>CMM 520</b> – Clinical Cancer Genetics	Schaibley	2
<b>CMM 620</b> – Foundations of Medical Genetics	Li	1
<b>CMM 624</b> - Advanced Genetic Counseling Skills	Stallman	2
<b>CMM 621</b> - Genetic Counseling in Reproductive Health	Stallman/Slayback	2
<b>BIOS 576a</b> – Biostatistics	Hsu	3
<b>CMM 595</b> - Genetic Counseling Colloquium	Quinn	1
<b>CMM 909/910</b> – GC Scholarly Project	Primary Advisor	2
<b>CMM 594</b> - Clinical Practicum	Stallman	2
<b>TOTAL UNITS, Semester 2</b>		<b>15</b>

<b>Summer – Year I</b>	<b>Course Director</b>	<b>Units</b>
<b>CMM 594</b> - Clinical Practicum (6-8 weeks)	Stallman	<b>4</b>

<b>Fall – Year 2</b>	<b>Course Director</b>	<b>Units</b>
<b>CMM 622</b> - Survey of Human Genetic Disorders	Neilson	3
<b>CMM 521</b> - Molecular Diagnostics and Lab Testing	Schaibley	1
<b>CMM 623</b> - Contemporary Professional Issues in GC	Kieran	2
<b>GENE 670</b> - Genetics Seminar	Schaibley	2
<b>CMM 909/910</b> – GC Scholarly Project	Primary Advisor	2
<b>CMM 594</b> - Clinical Practicum	Stallman	4
<b>TOTAL UNITS, Semester 3</b>		<b>14</b>

<b>Spring – Year 2</b>	<b>Course Director</b>	<b>Units</b>
<b>CMM 695d</b> - Advanced Analysis of Human Genetic Disease	Restifo	3
<b>MCB 504</b> - Bioethics	Pimental	4
<b>CMM 595</b> - Genetic Counseling Colloquium	Quinn	1
<b>CMM 909/910</b> – GC Scholarly Project	Primary Advisor	2
<b>CMM 594</b> - Clinical Practicum	Stallman	4
<b>TOTAL UNITS, Semester 4</b>		<b>14</b>

<b>TOTAL UNITS</b>	<b>63</b>
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In addition, completion of the UAGCGP requires evidence that a student has achieved competence in:

- Integration of knowledge of psychosocial aspects of conditions with a genetic component to promote client well-being.
- Use of a range of genetic counseling skills and models to facilitate informed decision- making and adaptation to genetic risks or conditions.

This may be accomplished with approval by the DGS (Director of Graduate Studies) by:

- Audit a course addressing psychosocial issues of death and loss such as PSY 456 Psychology of Death and Loss or a related course, or
- Submission of an annotated bibliography or literature review on a topic agreed to by faculty advisor or DGS

The UAGCGP Program Director must approve the method that each student will use to exhibit competence of the above components and when they will integrate this into their activities prior to the start of the fall semester of their second year in the program. Students may complete these requirements at any time during the course of the program. Documentation of the completion of one of these activities must be submitted to the UAGCGP prior to graduation.

***Course substitutions are permitted with the approval of the UAGCGP Program Director.***

## *Course Descriptions – Fall Year 1*

### **CMM 518 – Fundamental Genetic Mechanisms (3 credits)**

The function of genes lies at the heart of heritability and variation in biology. Understanding genetic mechanisms and genetic interactions is essential to understanding foundational concepts like developmental biology, cell physiology, evolution, and disease. But much of what is known about genetic mechanism is well advanced over the basics enumerated by Mendel and other early luminaries. This course covers advanced concepts in gene function, genetic interactions, and genetic analyses and manipulations that are commonly in use in research laboratories, or that go awry in human disease.

### **CMM 585 - Embryology, Teratology and Birth Defects (3 credits)**

This course is designed to help clinicians understand normal and abnormal fetal development as it applies to clinical approaches to prevent, diagnose, and manage birth defects. Beginning with an overview of embryology by organ system, concepts of developmental abnormalities leading to birth defects will be explored. These concepts include both intrinsic and extrinsic factors, such as underlying genetic mechanisms and exposure to teratogenic agents. This course will provide students with the tools to provide accurate and sensitive information on birth defects by examining risk assessment and communication techniques. Methods used in birth defects research, as well as availability and interpretation of relevant literature will be examined. Teaching methodologies will include didactic lectures (including guest lecturers), case studies, an in-class literature review project and outside readings.

### **CMM 527 – Pathophysiology Basics (1 credit, online)**

This course is designed for graduate students and advanced undergraduates interested in pursuing a career in translational biomedical research and in the health professions. The course will provide students with a foundational understanding of disease as a manifestation of disrupted physiology. Course content will include introductory cell physiology and disruption of homeostatic maintenance in disease processes associated with hematologic, cardiovascular, and immune system. Principles will be illustrated using representative commonly occurring disorders and their treatments. This course is designed to complement CMM 547, Histology Basics, which presents principles of cell and tissue organization of the human body.

### **CMM 528 – Pathophysiology of Integumentary, Respiratory and Digestive Systems (1 credit, online)**

This course is designed for graduate students and advanced undergraduates interested in pursuing a career in translational biomedical research and in the health professions. The course will provide students with a foundational understanding of disease as a manifestation of disrupted physiology. Course content will include an overview of normal physiology of integumentary,

respiratory, and digestive systems, as well as disruption of homeostatic maintenance in disease processes associated with these organ systems. Principles will be illustrated using representative commonly occurring disorders and their treatments. This course is designed to complement CMM 548, Histology of Respiratory and Digestive Systems.

### **CMM 529 – Pathophysiology of Urogenital and Endocrine Systems (1 credit, online)**

This course is designed for graduate students and advanced undergraduates interested in pursuing a career in translational biomedical research and in the health professions. The course will provide students with a foundational understanding of disease as a manifestation of disrupted physiology. Course content will include an overview of normal physiology of urogenital and endocrine systems, as well as disruption of homeostatic maintenance in disease processes associated with these organ systems. Principles will be illustrated using representative commonly occurring disorders and their treatments. This course is designed to complement CMM 549, Histology of Urogenital and Endocrine Systems.

### **CMM 519 - Introduction to Genetic Counseling (2 credits)**

This course will introduce first year students to the profession of genetic counseling. Beginning with the history and current structure of the field, students will explore the role of the genetic counselor in health care and the complex interaction with social, ethical, and legal issues.

The course will cover the development of beginning counseling skills necessary for clinical practice, including construction and application of family and medical histories, management of genetic counseling clinical cases, and active listening skills. The process of genetic counseling will be explored through theories of counseling as they apply to the development of interviewing skills, risk perception and communication, psychosocial and family development, multicultural sensitivity and competence and disability awareness.

### **GENE 670 - Genetics Seminar (2 credits)**

See detail in Multiple Semesters

### **CMM 600 - Introduction to Genetic Counseling Research (1 credit)**

The goal of this course is to introduce genetic counseling graduate students to the fundamentals of conducting a research project. In this course, students will learn essential elements of research including selecting a research topic, research ethics and the Institutional Review Board, reviewing and assessing scientific literature, research design, methodology and analysis and scientific writing. The educational format of this course will include lectures, class discussions and presentations, reading assignments and class projects.

## **CMM 594 – Clinical Practicum (2 credits)**

See detail in Multiple Semesters

### *Course Descriptions – Spring Year 1*

## **CMM 520 - Clinical Cancer Genetics (2 credits)**

This two-credit hour course will present important ideas in cancer genetics and precision health, preparing students to identify and evaluate patients with a family history consistent with a hereditary cancer syndrome, and to understand, interpret and apply the results of germline and somatic tumor testing. The course will cover three major topics, (1) Cancer biology and genetics, (2) inherited cancer syndromes and (3) ethical, legal, and social issues in clinical cancer genetics. The educational format will include lectures by experts in the field, reading and presentation of instructive cases. Students will use this knowledge to analyze pedigrees, perform risk assessment and explain clear and ambiguous test results.

## **CMM 620 - Foundations of Medical Genetics (1 credit)**

This one credit course will focus on the foundations of medical genetics. It will introduce various genetic epidemiology study designs and cover basic statistical genetic analysis approaches and inferences. Students will develop an understanding of the different types of inheritance, human genetic variation, the genetic basis of disease, epistasis, gene-environment interaction, and epigenetics. Practical applications of calculating genetic risks for families and clients will be accomplished using specific methods and case examples.

## **CMM 621 - Genetic Counseling in Reproductive Health (2 credits)**

Genetic counseling has been part of preconception and prenatal care for years. However, ever-emerging technologies offer patients more options (and, in turn, create more questions) than ever before. This course explores the role of the genetic counselor in supporting patients and their families from preconception to birth. Topics include techniques to obtain and analyze family histories, current preconception and prenatal screening and diagnostic methodologies, assisted reproductive technologies, facilitating parental decision making, perinatal death and loss as well as exploration of a wide range of related counseling issues.

## **BIOS 576A - Biostatistics in Public Health (3 credits, online)**

This course introduces biostatistical methods and applications, and will cover descriptive statistics, probability theory, and a wide variety of inferential statistical techniques that can be used to make practical conclusions about empirical data. Students will also be learning to use a statistical software package (STATA).

### **CMM 695 - Genetic Counseling Colloquium (1 credit, both spring semesters)**

This 1-credit course will focus on student-lead educational opportunities in a variety of issues specific to genetic counseling. It will be taken by first- and second-year genetic counseling students together in the spring of both years. Students will develop their academic, clinical, and teaching skills by class presentations of social, legal, and ethical issues in genetic counseling, in addition to developing a PowerPoint presentation. Class participation is strongly encouraged by using collaborative learning techniques.

### **CMM 624 – Advanced Genetic Counseling (2 credits)**

This course will take a deeper look at some of the more complex aspects of genetic counseling, such as ethical dilemmas, conflicts of interest, bias, and patterns of thought and behavior that can affect counselor-patient interactions. The course material and activities will allow for further exploration of the multifaceted needs of patients and counselors. Students will engage in independent work such as creating a health education tool for patients and share their thoughts and ideas with other students through group discussions and other collaborative learning opportunities.

### **CMM 909/910 GC Scholarly Project (2 credits)**

See detail in Multiple Semesters

### **CMM 594 – Clinical Practicum (2 credits)**

See detail in Multiple Semesters

### *Course Descriptions – Fall Year 2*

### **CMM 622 - Survey of Human Genetic Disorders (3 credits)**

This course will provide an overview of multiple common genetic disorders. Each topic will focus on the etiology, availability of diagnostic testing, management, and counseling issues for each disorder. Students will gain an understanding of the impact of specific genetic conditions on individuals, their families and society.

### **CMM 521 - Molecular Diagnostics and Lab Testing (1 credit)**

Diagnostic tools in genetics have been rapidly evolving since the publishing of the Human Genome in 2003. CMM 521 is a 1 credit hour course that will delve into current genetic diagnostic methodologies and discuss future applications, developments, and challenges in the field of genetic testing. Topics covered in this course will include fundamental principles of cytogenetics, chromosome

abnormalities, microarray, genetic screening assays, and variant interpretation and reporting. In addition, the course will explore new molecular methodologies, including whole genome and exome sequencing, bioinformatic analysis of DNA sequence data, and regulatory oversight of new DNA-based tests, and examine the ways in which these technological advances are shifting the practice of genetics and genomic medicine. The course will also instruct students on systematic use of lab testing in the diagnostic process for genetic conditions.

### **CMM 623 - Contemporary Professional Issues in Genetic Counseling (2 credits)**

This 2-credit course will prepare the genetic counseling student for their professional career by focusing on an overview of practice settings and professional development. Professionals involved in specific practice areas will discuss their roles and responsibilities encountered in the field of genetic counseling and medical genetics. Advanced topics to be discussed include supervision of various health care providers, obtaining and maintaining certification, licensing, and professional credentialing, and becoming a life-long learner. Strategies for professional growth, certification, and licensure, and preparing for the job market are addressed. Students are also introduced to issues of billing and reimbursement, genetic service delivery models, telemedicine, and the business/marketing aspects of providing genetic services.

### **GENE 670 - Genetics Seminar (2 credits)**

See detail in Multiple Semesters

### **CMM 909/910 GC Scholarly Project (2 credits)**

See detail in Multiple Semesters

### **CMM 594 – Clinical Practicum (4 credits)**

See detail in Multiple Semesters

### *Course Descriptions – Spring Year 2*

### **CMM 596D - Advanced Analysis of Human Genetic Disease (3 credits)**

*So many diseases, so little time!* The primary goal of this course is to teach strategies for thinking about *any* disease, by understanding different levels of genetic causation, the methods of disease diagnosis, and evolving insights about disease classification. Together, these approaches enhance our critical analysis of research on disease pathogenesis and the challenge of developing safe and effective therapeutics. Each year, we focus on four exemplar diseases, moving from simple Mendelian genetic disorders with well-understood pathophysiology, to

progressively more complex and more mysterious disorders with substantial environmental components. Readings come from the literature of both clinical medicine and laboratory research. Students receive substantial coaching on presentation skills.

### **MCB 504 - Bioethics (3 credits)**

Biology is the science that tries to explain the nature of the mechanisms that keep living organisms functioning as well as their interaction with the environment. Getting to know these mechanisms is not only interesting from the pure sense of knowledge, but this information can be used to manipulate the physiology of the organism as well as its environment. The speed at which many biological discoveries have taken place in the last decades has been extraordinary. Terms like stem cell, gene cloning, and crops bioengineering are commonly used by science students in high school and the general public, and you hear about them in the media frequently. Many of these discoveries have immediate applications while others could (or will) be used in future ones. Many scholars (scientists in general and philosophers in particular) have raised concerns on the moral/ethical implications of several applications of this knowledge. This course is intended to bring these concerns to the consideration of this group. We will present and evaluate a select number of topics from the following points of view: 1) the science of the issue in question, 2) the significance and application of this scientific knowledge, 3) moral and ethical issues raised by the application of this science, 4) the social impact, and 5) legal consideration that these advances of biology could cause. We will evaluate, analyze, and argue each of these points. These exercises will help us to develop a more critical analysis of these ethical issues in order to better prepare for real-life application in the healthcare field.

### **CMM 909/910GC Scholarly Project (2 credits)**

See detail in Multiple Semesters

### **CMM 594 – Clinical Practicum (4 credits)**

See detail in Multiple Semesters

### *Course Descriptions – Multiple Semesters*

#### **CMM 594 – Clinical Practicum**

Students enrolled in CMM 594 will apply theoretical concepts to assess and manage individuals and families with genetic disorders. Students will expand their clinical knowledge base necessary for an effective career in genetic counseling and successful completion of their graduate program. This course will also provide students with the clinical training experiences to prepare them for the certification exam by the American Board of Genetic Counseling. Individual clinical rotations will

be arranged by the UAGCGP leadership. All clinical practicum rotations will take place in sites that meet the requirements of competencies for genetic counselors, as defined by the Accreditation Council for Genetic Counseling.

### **CMM 909/910 GC Scholarly Project**

All students in the UAGCGP are required to complete a scholarly project for graduation. The goal of the scholarly project is for students to dive deeply into a specified topic, review the relevant primary literature, and develop a new project to expand current knowledge, create a new application based on current knowledge or distill the literature into a comprehensive and thorough review. Students can choose between the thesis and scholarly project options to best suit their professional goals. Thesis projects typically include the student generating original data to advance the understanding of a particular field, either by designing a new project or working with faculty on an existing project in their laboratory. Capstone projects typically include a novel application of existing knowledge or a comprehensive review of the primary literature in a specified area of clinical genetics or genetic counseling. Students who choose the thesis option will enroll in 2 credits of CMM 910 –Thesis. Students who choose the capstone option will enroll in 2 credits of CMM 909 – Independent Study/Genetic Counseling Capstone. The course director for these units will be the student’s primary advisor or the UAGCGP Research Director if a student has not yet selected a primary advisor.

### **GENE 670 - Genetics Seminar (2 credits)**

This weekly, two-credit-hour course introduces trainees to important and timely topics in basic and applied genetics and genomics research through regular seminars, journal clubs, case conferences student presentations and case conferences.

#### *Journal Club/Case Conferences*

Every other week, students from the class, along with additional faculty, will present journal clubs and/or case conferences to discuss relevant research advances and informative cases in the field of medical genetics. These classes will be held with students and faculty in the Genetic Counseling Graduate Program.

#### *Genetics Seminar*

Once every four weeks, the Genetics GIDP hosts either a faculty member from the UA or external faculty to present their research. The focus of these seminars is typically on advances in basic genetics and genomics research. Prior to the seminar, students discuss a relevant paper selected by the presenting faculty member. These classes will be held with the other section of this course with students in the genetics GIDP.

#### *Genetics and Genomics Grand Rounds*

Once every four weeks, the Genetic Counseling Graduate Program hosts either faculty from the UA or external faculty to present their research. The focus of these seminars is typically on advances clinical genetics and genomics. Prior to the

seminar, students discuss a relevant paper selected by the presenting faculty. These classes will be held with the other section of this course with students in the genetics GIDP.

As noted in the curriculum above, the program requires evidence of competency in issues related to death and loss. This can be accomplished by auditing a course with related subject material such as the one described below or an independent study project.

*Optional class to fulfill required psychosocial competency. See curriculum for additional information.*

### **PSY 456 - Psychology of Death and Loss (audit)**

The goals of this course are to introduce students to the field of thanatology, or the psychology of death and loss. I hope to help you develop the conceptual and methodological skills necessary for interpreting research in this area. To facilitate these goals, the course will address:

- Issues associated with **education** about death, dying, and bereavement
- Issues related to **death** itself, including changing patterns of death-related encounters, attitudes, and practices, as well as characteristic features of the contemporary American death system, and diverse cultural patterns within selected groups in American society
- Issues related to **dying**, including coping with dying, helping persons who are coping with dying, hospice principles, and societal programs of care for persons who are coping with dying
- Issues related to **bereavement**, including coping with loss and grief, helping those who are coping with loss and grief, and societal programs of care for persons who are coping with loss and grief (funeral and memorial rituals, aftercare services, hospice bereavement follow-up programs, and bereavement support groups)
- **Developmental issues** in the field of death, dying, and bereavement as they are associated, in turn, with children, adolescents, young and middle-aged adults, and older adults
- **Conceptual and moral issues**—related to the law (advance directives for health care; definition, determination, and certification of death; organ, tissue, and body donation; and disposition both of dead bodies and of property after death), suicide and life-threatening behavior, assisted suicide and euthanasia, and the meaning and place of death in life
- The emphasis of this course is on reviewing scientific evidence (rather than discussing anecdotal or personal experience, although applying knowledge to one's life is always good) with the overall goal of helping you learn to think critically about current theories and research findings.

## *Academic Remediation Procedure*

Please see the **UAGCGP Remediation** section for Academic Coursework under **Institutional and Program Policies**.

## **CLINICAL ROTATIONS**

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### *CMM 594 - Clinical Practicum*

Students will take a clinical practicum course every semester throughout the program: CMM 594 Clinical Practicum. Students will take CMM 594 for two credit hours in the Fall and Spring semesters of their first year, four credit hours over the Summer term between their first and second year, and four credit hours in the Fall and Spring semesters of their second year. During the course of their training, students will need to acquire a minimum of 50 participatory cases to be eligible to sit for the ABGC board exam. The Associate Program Director and the Clinical Coordinator will monitor student logbooks closely to ensure that students are obtaining an adequate number of participatory cases.

The Associate Program Director, in conjunction with the Clinical Coordinator and Program Coordinator, are responsible for developing, maintaining and documenting all clinical training for the UAGCGP. The Clinical Coordinator will oversee the educational content of all clinical practicums and will serve as the course director for CMM 594. Grades for clinical practicum are pass/fail and will be based on student evaluations from clinical supervisors.

The program performs initial and ongoing evaluation of all clinical training sites to ensure that students, sites and supervisors meet program-defined learning outcomes and performance evaluation measures.

Rotations will take place in clinics in Tucson and Phoenix. Students are responsible for their own transportation to clinics. Whenever possible, the Program Administration will position clinics in Phoenix (about a 2-hour drive from Tucson) to allow for ridesharing among students.

Academic year clinical rotations are scheduled by the program administration, in coordination with the clinical supervisors. First year students will participate in six clinical rotations throughout the academic year, each lasting five weeks, and will typically spend one day per week in clinic. Summer rotations will be scheduled at the discretion of the summer rotation supervisor and the student (more information on the summer rotations are available below). Second year students will typically spend two days per week in clinic. Second year rotations each last eight weeks, for a total of four clinical rotations through the fall and spring semesters.

### *Sample Rotation Schedules for First- and Second-Year Students*

#### **Sample Rotation Schedule for First Year Students**

*Note: The sample schedule below may change from year to year depending on availability of clinical supervisors and clinical rotation sites.*

Semester	Student 1	Student 2	Student 3	Student 4	Student 5
Fall	Clinical Skills Workshop				
	Adult	Teratology	Prenatal	Cancer	Pediatrics
	Pediatrics	Adult	Teratology	Prenatal	Cancer
Spring	Cancer	Pediatrics	Adult	Teratology	Prenatal
	Prenatal	Cancer	Pediatrics	Adult	Teratology
	Teratology	Prenatal	Cancer	Pediatrics	Adult

### Rotation Sites – First Year Students

Rotation Specialty	Rotation Site	Rotation City	Rotation Supervisor(s)
Adult Genetics	Mayo Clinic Scottsdale	Scottsdale, AZ	Radhika Dhamija, MD, FACMG, Maggie Klint, MS, CGC, Kathleen Barrus, MS, CGC
Cancer Genetics	University of Arizona Cancer Center	Tucson, AZ	Lauren Maynard, MS, CGC and Alexa Rosenblum, MS, CGC
Pediatrics	Banner University Medical Center, Tucson and Children's Clinics	Tucson, AZ	H. Eugene Hoyme, MD and Maureen Galindo, MS, RN
Prenatal Genetics	Banner University Medical Center, Tucson	Tucson, AZ	Catelyn Slayback, MS, CGC
Teratology	MotherToBabyAZ	Tucson, AZ	Chris Stallman, MS, LCGC

### Sample Rotation Schedule for Second Year Students

*Note: The sample schedule below may change from year to year depending on availability of clinical supervisors and clinical rotation sites.*

Semester	Student 1	Student 2	Student 3	Student 4	Student 5
Fall	Pediatrics	Cancer/Adult	Cancer	Cancer	Prenatal
	Prenatal	Pediatrics	Cancer/Adult	Prenatal	Cancer/Adult
Spring	Cancer	Prenatal	Pediatrics	Cancer/Adult	Pediatrics
	Cancer/Adult	Cancer	Prenatal	Pediatrics	Cancer

## Rotation Sites – Second Year Students

Rotation Specialty	Rotation Site	Rotation City	Rotation Supervisor(s)
Adult/Cancer Genetics	GenomeMedical	Remote	Various
Cancer	Banner/MD Anderson Cancer Center	Gilbert, AZ	Rebecca Luiten, MS, CGC and Jennifer Siettman, MS, CGC
Cancer	Arizona Oncology	Phoenix Metro Area, AZ	Sarah Kristofil, MS, CGC
Cancer	Dignity Health	Phoenix, AZ	Kim Brussow, MS, CGC and Karen Dirrigl, MS
Cancer	Virginia Piper Cancer Center at HonorHealth	Scottsdale, AZ	Madison LaFleur, MS, CGC, Anna Schon, MS, CGC and Cynthia Lim, MS, CGC
Cancer	Ironwood Cancer and Research Centers	Scottsdale, AZ	Mandy Kass, MS, CGC and Rachel Mador-House, MS, CGC
Cancer	Color Genomics	Remote	Various
Laboratory	Prevention Genetics	Remote	Gina Londre, MS, CGC
Pediatrics	Phoenix Children’s Hospital	Phoenix, AZ	Derek Nielson, MD, FACMG, Kyriekos Aleck, MD, FACMG, There Grebe, MD, FACMG, John Baker, MD, FACMG, Peggy Kulch, MS, CGC, Brianna Pruniski, MS, CGC, and Supraja Prakash, MS, CGC, Andrew Fazenbaker, MS, CGC and Ally Abbott, MS, CGC
Prenatal	Integrated Genetics	Phoenix, AZ/Remote	Myriam Pelletier, MS, CGC
Prenatal	Tucson Medical Center	Tucson, AZ	Elizabeth Chavez, MS

### Summer Rotation

Summer rotations are an opportunity for students to focus on practical, hands-on work in a genetics clinic, industry, laboratory or other settings. Students have discretion when identifying summer rotations and are encouraged to select rotations which they feel will round out their professional goals. For rotations that will take place with a new rotation site, the program will need a minimum of 8-10

weeks notice prior to the start of the rotation to make sure the appropriate agreements are in place. Rotations may occur out-of-state. Students are encouraged to be creative about their choice of a summer rotation. If needed, the UAGCGP will help identify rotation options for student summer rotations and assist the student in making sure that the appropriate administrative requirements are in place.

**Students will be required to enroll in four credits of CMM 594 over the 10-week summer term.** Most summer rotations will consist of 6-10 weeks, 3-4 days per week, for a total of 256 clinic hours (32 days) in a single summer rotation. Students will schedule time in summer rotations directly with their summer rotation supervisors, and can be flexible with scheduling, as long as they meet 256 clinic hours. Prior approval from the Associate Program Director is required if students need to participate in more than one rotation during the summer to meet the requirements, or if they will deviate from the 256 required hours in their rotation.

Some example rotations may include:

- Laboratory, Industry or Research Rotations:
  - Integrated Genetics, Phoenix AZ
  - ThermoFisher, Phoenix AZ
  - University of Arizona Genetics Core: Clinical Services Laboratory, Tucson AZ
  - Veterans Affairs Health Care System Cytogenetics Laboratory, Phoenix AZ
  - Sonora Quest Laboratory, Phoenix AZ
  - Translational Genomics Research Institute (TGen), Phoenix, AZ
  - *All of Us* Research Program, Tucson and Phoenix AZ
  - Cord Blood Registry, Tucson, AZ
  - Invitae, San Francisco, CA
  - Prevention Genetics, Marshfield, WI
  - Myriad Genetics, Salt Lake City, UT
- Public Health Genetics:
  - Arizona Department of Health Newborn Screening Lab, Phoenix, AZ
- Prenatal Genetics:
  - Banner-University Medical Center Tucson, Tucson AZ
  - Tucson Medical Center, Tucson AZ
  - Reproductive Health Center, Tucson, AZ
  - Arizona Reproductive Institute, Tucson, AZ
- Cancer Genetics:
  - Banner University Medical Center Phoenix, Phoenix, AZ
  - University of Arizona Cancer Center, Tucson AZ
  - Dignity Health, Phoenix, AZ
- Pediatric Genetics:
  - Phoenix Children's Hospital, Phoenix AZ

## *Clinical Practicum Code of Conduct*

Students in the UAGCGP represent our program while working in their rotations. The program expects that students present themselves in a positive, professional manner during all classes, clinical rotations, and other program functions.

Student participation will be progressive throughout rotations. At the beginning of rotations in the 1<sup>st</sup> year, students will primarily observe practitioners and patients. As students progress through the program, they are expected to increase participation in the clinic by taking family and medical histories, educating patients on genetic conditions and inheritance patterns and pre and post-test counseling. By the midpoint of their second year, students will be expected to manage entire counseling sessions independently with supervisors observing and monitoring the interaction.

Cell phones must be turned off in all clinical settings. Portable music devices or headsets, unless required to perform the job, are prohibited in all rotation sites unless otherwise noted by the site supervisor.

Students are prohibited from taking photos of patients and/or staff during clinical rotations.

The health and safety of our students, supervisors, faculty, and patients that our program interacts with is of the utmost importance. If a student is or suspects that they may be ill, it is important that they stay home to avoid infecting others. If a student becomes ill during their clinical rotation and is unable to participate in any or all of that rotation, they must communicate any missed time to the supervisor and the clinical coordinator in writing. If a student misses more than one clinic day, makeup days in clinic may be assigned.

While in clinic, students are expected to follow any rules and guidelines set forth by the rotation site and the supervisor. Failure to comply with stated rules and guidelines could result in a reduced grade for the course. Supervisors will notify the Associate Program Director and the Clinical Coordinator in writing about any conduct issues during rotations.

## *Rotation Remediation Procedure*

Please see the UAGCGP Remediation section on Clinical Rotations under [Institutional and Program Policies](#).

## *Rotation Forms and Procedures*

Students' clinical rotations undergo extensive documentation from both the students and the rotation supervisors. Supervisors complete evaluations of the students at the end of their 5-week rotations for first year students. For second year students, supervisors complete an evaluation after the first four weeks as well as a second evaluation at the end of the 8-week rotation. All rotation forms are completed and stored in Typhon. Students complete the following forms:

## **Professional Development and Goals**

The purpose of this form is to set the stage for students entering a new clinical rotation. Students describe their previous experience and what they hope to achieve in the upcoming rotation. Students complete prior to the start of their rotation and review with the clinical supervisor during the first day of their rotation. Students must submit this form in Typhon within one week of the start of the rotation.

## **Evaluation of Rotation Site and Supervisor**

At the end of each rotation, students complete an evaluation of the rotation site and supervisor in which they evaluate the learning climate, the relationship with the supervisor, and the ethics and professionalism practiced by the supervisor. Student must submit this form in Typhon within one week after the end of the rotation. Anonymized summaries of these forms will be shared with clinical supervisors at the end of the academic year.

## **Case Logs**

During the course of the program, students will compile a logbook with the case information for all cases they experience during their clinical rotations. This should include both participatory and non-participatory cases. The logbook is composed of individual case logs which describe the details of the case and the roles that the student played in the case. Case logs are completed and submitted by the student in Typhon and then reviewed and approved by the supervisor who oversaw the student at that particular case. Students must maintain copies of their case logs and their entire logbook.

### *Participatory vs. Non-Participatory Cases*

Students must collect a minimum of 50 participatory cases to be eligible to sit for the ABGC board exam. To be considered a “participatory case”, the case must be supervised by an experienced ABGC/ABMG/CAGC certified genetic counselor who has been in practice for over one year. In addition, the student must actively participate in at least one role in each of the three categories of Fundamental Counseling Roles (Management, Education, and Counseling). Cases that fall out of these requirements are considered non-participatory cases. It is important that students maintain a log of both participatory and non-participatory cases to show the full range of experiences they have achieved during their education.

#### **Fundamental Clinical Counseling Roles**

1. Management Roles:
  - a. Case preparation involves reviewing all relevant information about the client and the indication for genetic counseling prior to the session.

- b. Collection/documentation of medical, developmental and/or pregnancy history implies the eliciting of pertinent medical information including pregnancy, development and medical histories and environmental exposures.
  - c. Collection/documentation of family history/pedigree involves the eliciting of information for and construction of a complete pedigree.
  - d. Risk assessment involves pedigree analysis and evaluation of medical and laboratory data to determine recurrence/occurrence risks.
  - e. Evaluation/coordination of genetic testing includes determining the appropriate genetic test(s), evaluating laboratories, and/or coordinating the testing.
  - f. Clinical documentation (clinic notes, letters) implies writing clinic notes or letters about the appointment
  - g. Other follow-up (calls, referrals) includes but not limited to conducting further literature review, maintaining contact with the family to address any additional concerns, or identification of other health care professionals or resources for patient care.
2. Education Roles
- a. Develop a counseling plan and agenda that includes pertinent education issues to address
  - b. Inheritance pattern involves educating patients about modes of inheritance.
  - c. Risk counseling involves educating patients about their personal and/or familial risks
  - d. Diagnosis/prognosis/natural history includes conveying genetic, medical, and technical information about the diagnosis, etiology, natural history and prognosis of genetic conditions and/or birth defects.
  - e. Medical management/prevention/treatment includes discussing current medical management, prevention, and treatment of genetic conditions and/or birth defects.
  - f. Genetic and/or prenatal testing options and possible results/benefits/limitations includes explaining the technical and medical aspects of diagnostic and screening methods and reproductive options, including associated risks, benefits, and limitations.
  - g. Results disclosure involves interpreting the results and discussing them with the patient; can include the development of teaching aids and the provision of educational materials
  - h. Research options /consenting involves discussion about research opportunities and/or consenting the patient for the study.
3. Counseling Roles
- a. Establishing rapport/contracting refers to initiating the genetic counseling session, eliciting client concerns and expectations, and establishing the agenda.

- b. Psychosocial assessment includes eliciting and evaluating social and psychological histories and assessing clients' psychosocial needs.
- c. Psychosocial support/counseling involves providing short term, client-centered counseling, psychosocial support, and anticipatory guidance to the family as well as addressing client concerns.
- d. Resource identification/referral includes helping the client identify local, regional, and national support groups and resources in the community.
- e. Case processing/self-assessment/self-reflection: involves critical thinking about the session; what was done successfully as well as areas to improve.

Telemedicine cases, where the student has audio and/or visual contact with the patient during the counseling session, may be counted as participatory cases if they otherwise meet the above requirements.

### *myClinicalExchange*

myClinicalExchange is an internet platform accessible by Universities, Hospitals, Students and Preceptors/Clinical Instructors. At its most basic level, it streamlines the Request – Approval – Scheduling process for Clinical Rotations. It also tracks Student Compliance and allows Students or Universities to upload Required Documents to the Hospital. The platform is also capable of many other things including running reports and sending out surveys and assessments.

Banner Health, Mayo Clinic and HonorHealth use myClinicalExchange to organize and approve clinical rotations for all student rotations. Students will be required to create a myClinicalExchange account and upload all required documentation into the platform to assure compliance with clinical rotation requirements.

If you experience any problems using myClinicalExchange, you can contact their customer support at [support@myclinicaexchange.com](mailto:support@myclinicaexchange.com) or 303.300.1024.

### *Typhon*

Typhon is a web-based clinical rotation management platform. The UAGCGP uses Typhon to track all student clinical rotation experiences. Students and supervisor complete forms, view schedules and complete evaluations for clinical rotations in Typhon. In addition, students complete all case and time logs in Typhon, allowing students, supervisors, and the program administration to track student progress throughout their clinical rotations.

Students can access Typhon here:

<https://www.typhongroup.net/ahst/data/login.asp?facility=9451>

## **SCHOLARLY PROJECT**

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All students in the UAGCGP are required to complete a scholarly project for graduation. The goal of the scholarly project is for students to dive deeply into a specified topic, review the relevant primary literature, and develop a new project to expand current knowledge, create a new application based on current knowledge or distill the literature into a comprehensive and thorough review.

Students can choose between the thesis and capstone options to best suit their professional goals. Thesis projects typically include the student generating original data to advance the understanding of a particular field, either by designing a new project or working with faculty on an existing project in their laboratory. Capstone projects typically include a novel application of existing knowledge or a comprehensive review of the primary literature in a specified area of clinical genetics or genetic counseling.

The writing of a graduate thesis or capstone is a personal process that is different from other academic writing experiences. Compared to many writing assignments at the undergraduate level, the process of writing a thesis is iterative and involves substantial back-and-forth with the Primary Advisor and Committee. Students typically find that the scholarly project takes more time and effort than anticipated. Thus, careful long-range planning is an important component of success.

This document includes guidelines, timelines, requirements, and other information to help students complete their scholarly project. General guidelines apply to both thesis and capstone projects; guidelines that are specific to either the thesis or the capstone project are described in their respective sections of this document.

## General Guidelines

### Scholarly Project Option – Thesis or Capstone

All students in the UAGCGP are required to complete a scholarly project. Each student can choose to complete either a thesis or a non-thesis, capstone option. The major differences between the thesis and capstone options are the range of topics that students can choose to focus on and the composition of the committee. Topics for capstone projects are more flexible and allow for a broader scope of projects compared to the thesis option.

The choice between a thesis or a capstone project depends primarily on the student's topic, area of interest and a student's professional goals. Students are encouraged to work with their primary advisor and the UAGCGP Research Director to help them determine if a thesis or a capstone project would be more suitable. Students are required to decide between a thesis and a capstone option before the fall semester of the 2<sup>nd</sup> year of the program. After the start of the fall semester of the 2<sup>nd</sup> year of the program, students will not be able to switch from a thesis to a capstone project or vice versa. Exceptions will be made only under extreme circumstances and require approval from the UAGCGP Research Director.

A brief comparison between the thesis and capstone options is shown in the table below.

Component	Thesis Option	Capstone Option
Topics	Generate new knowledge or data	Flexible topics
Committee	At least 3 members, 2 of which must be from the UAGCGP Graduate Faculty	At least 3 members, 1 of which must be from the UAGCGP Graduate Faculty
Project proposal	Yes	Yes
Written document	Yes	Yes
Archiving with UArizona Campus Repository	Yes	No
Oral defense	Yes	Yes

### Required Classes

#### *CMM 600: Introduction to Genetic Counseling Research*

Students are required to enroll in CMM 600: Introduction to Genetic Counseling Research during the first semester of the program. This class is designed to introduce students to the research process, including research ethics, human subject's protection and the IRB, research methodology, searching and evaluating the primary literature, identifying research topics with primary advisors and resources available at UArizona to help students complete their projects.

### *Research Credits*

During the remaining fall and spring semesters of the program, students will enroll in 2 research credits, giving them dedicated time to work on their scholarly project. Students are not required to enroll in research credits over the summer. Students who choose the thesis option will enroll in 2 credits of CMM 910 – Thesis. Students who choose the capstone option will enroll in 2 credits of CMM 909 – Independent Study/Genetic Counseling Capstone. The course director for these units will be the student’s primary advisor or the UAGCGP Research Director if a student has not yet selected a primary advisor. The table below shows the required scholarly project courses for each fall and spring semester of the program.

<b>Semester</b>	<b>Thesis Option</b>	<b>Capstone Option</b>
Fall Y1	CMM 600 (1 unit)	CMM 600 (1 unit)
Spring Y1	CMM 910 – Thesis (2 units)	CMM 909 – Capstone (2 units)
Fall Y2	CMM 910 – Thesis (2 units)	CMM 909 – Capstone (2 units)
Spring Y2	CMM 910 – Thesis (2 units)	CMM 909 – Capstone (2 units)

### **Role of Advisors and Faculty**

#### *UAGCGP Research Director*

The UAGCGP Research Director serves as a navigator for students’ scholarly projects and will be the main point of contact for UAGCGP students for any questions or concerns they have about their thesis or capstone project. The Research Director will help students identify and refine topics, devise methodology and help connect students with appropriate primary advisors and committee members. The Research Director can also act as the primary advisor or serve on a student’s committee, if appropriate for the student’s topic.

Until students identify a primary research advisor for their capstone project, students will meet with the Research Director monthly during the first year of the program to discuss progress and ideas for the capstone project. During the second year of the program, students will meet with the Research Director at the beginning of the fall and spring semesters to discuss their research progress.

#### *Primary Advisor*

The primary advisor is the individual who works closely with a student on their scholarly project and oversees a student’s project. The primary advisor also serves as the chair of the student’s committee. The primary advisor must be a part of the UAGCGP Graduate Faculty. If a student wishes to work with a faculty member who is not part of the UAGCGP Graduate Faculty, they can petition the UAGCGP leadership. Membership to the UAGCGP Graduate Faculty is limited to UA faculty only.

The student will form a close relationship with their primary advisor during the capstone project. Primary advisors are encouraged to set up regular meetings with students to closely track the student's progress on their project.

### *Committee Member*

Students will form a thesis or capstone committee consisting of individuals with subject-matter-expertise in an area that will help further a student's project. Committee members can include UAGCGP Graduate Faculty, UA faculty and staff with expertise in a specific area, practicing clinicians who are not UA faculty with relevant expertise, or others outside the UA who would be appropriate to provide relevant feedback on a student's project. Students are encouraged to communicate regularly with committee members to benefit from their valuable feedback.

### **Committee Meetings**

All students are required to hold at least two committee meetings to discuss their project proposal and results with their committee. Students will also defend their project to their committee at the end of the second year (details for thesis and capstone defenses are described below.) The composition of the committee is different for students performing a thesis or a capstone project (see thesis and capstone-specific guidelines for details), but the format of the committee meetings is the same for either project.

### *Format*

Committee meetings are intended for the student and the student's primary advisor to receive feedback from the committee on the research plans and adjust the research methodology and direction of the project. Committee meetings will be run by the student's primary advisor. During the committee meeting, the student will give a 15 - 20-minute presentation to orient the committee to the project, discuss developments and plans and serve as a jumping off point for discussion for the committee. The committee will then spend 30 - 60 minutes discussing the project, asking the student questions, and providing feedback and critiques on the overall direction of the project. After the committee meeting, the student will work with their primary advisor to adjust the project plan/analysis/interpretation based on feedback from the committee.

### *Timing*

The first committee meeting will be held late in the spring semester of the first year of the program. This meeting will focus on the background literature, motivation to pursue the project, and the overall plan and design of the proposed project. After this meeting, the student will submit a written project proposal to the UAGCGP Research Director for additional feedback.

Students will hold a second committee meeting toward the end of the fall semester during the second year of the program. This meeting will include updates to methodology and the proposal since the previous committee meeting and will describe project implementation and results, analysis, and interpretations that the student has drawn from the project. At the end of this meeting, the committee will approve that the student is ready to move on to draft their thesis or capstone document.

## Project Proposals

During the first year of the program, students are required to submit two project proposals to the UAGCGP Research Director. The first proposal is an initial description of the topic that the student wants to pursue and broadly describes the approach that they would use to explore their topic (i.e., survey, structured interviews, laboratory-based). This initial proposal is included as part of CMM 600:

Introduction to Genetic Counseling

Research and will be due at the end of the fall semester of the 1<sup>st</sup> year.

At the end their first spring semester in the program, after the student's first committee meeting, students will submit a revised project proposal to the UAGCGP Research Director. This proposal will document any changes to their topic and/or project direction. This proposal will briefly summarize the background literature, the inspiration for conducting the project and describe the proposed project. Students who are conducting thesis projects must include a hypothesis and describe proposed methods for data collection and analysis. Students who are conducting a capstone project must describe the proposed project and steps they will take to implement the project.

### *Proposal Format*

Both of these proposals must be no more than four pages in length, not including references. The proposal must be double-spaced, 12-point Arial font with 1-inch margins. The thesis or capstone project proposal must include the headings shown in the graphic to the right.

If a project will require funding from the UAGCGP Scholarly Project Funding or other sources, students must submit a separate budget and brief 1-2 paragraph budget justification in addition to the project proposal.

Thesis Option	Capstone Option
<ul style="list-style-type: none"> <li>•Introduction/ Literature Review</li> <li>•Aim(s)</li> <li>•Hypothesis</li> <li>•Methods</li> <li>•References</li> </ul>	<ul style="list-style-type: none"> <li>•Introduction/ Literature Review</li> <li>•Motivation for Project</li> <li>•Project Proposal</li> <li>•References</li> </ul>

Figure 1: Project proposal headings for thesis and capstone options.

## **Project Funding**

For projects that require financial support, the UAGCGP has funding available for student research projects. Each student is eligible to use up to \$1,000 during the second year of the program to support their project. Students must submit a budget and a brief 1-2 paragraph budget justification to the UAGCGP Research Director to receive approval for funding of their project.

Students are encouraged to apply for external sources of funding as well. The UAGCGP Research Director will work with students who are interested in applying for outside funding to support their project. Some examples funding sources that students can apply for include:

- National Society of Genetic Counselors Jane Engelberg Memorial Fellowship (JEMF) Student Research Award, <https://www.nsgc.org/JEMF>
- National Society of Genetic Counselors Special Interest Group (SIG) Awards (see information on individual SIGs here: <https://www.nsgc.org/SIG>)

## **Project Presentation at Professional Meetings**

Students are encouraged to present their scholarly projects at the annual meeting of the National Society of Genetic Counselors (NSGC) or other relevant professional societies. The annual NSGC conference is typically held in the early fall. Students who wish to present their project at the NSGC meeting must submit an abstract for approval from the NSGC. Abstracts are typically due during the spring before the conference. There is more information available at <https://www.nsgc.org/conference>.

## **GradPath**

Students who choose the thesis option for their scholarly project must receive approval of their committee members from the Graduate College using the appropriate form in [GradPath](#). Approval of a student's committee in GradPath should be completed by the end of the fall semester of Year 2. All students must complete the Graduate Plan of Study, although these can be revised throughout the program as needed. For those selecting the thesis option, the Master's/Specialist Committee Appointment Form can be completed once the Plan of Study has been submitted and approved.

## **Institutional Review Board**

The Human Subjects Protection Program (HSPP), as the administrative and regulatory support program to the Institutional Review Boards (IRBs), works in collaboration with the research community to maintain an ethical and compliant research program. The IRBs are the independent review committee charged with the protection of human research subjects. An IRB must review all research and related activities involving human subjects conducted at the University of Arizona or in which the University is a responsible participant. The University of Arizona HSPP has been accredited by the Association for Accreditation of Human Research

Protection Programs (AAHRPP) since 2005, strong evidence of our commitment to the protection of human research subjects.

All students who are conducting research involving human subjects must either receive certification from the IRB that their project is exempt from IRB review or submit a full application for approval from the University of Arizona IRB, regardless of thesis or capstone option for their project. Additional information [about the IRB](#) and [instructions](#) on submitting either a determination of human subjects research or a full IRB application can be found on the [HSPP website](#).

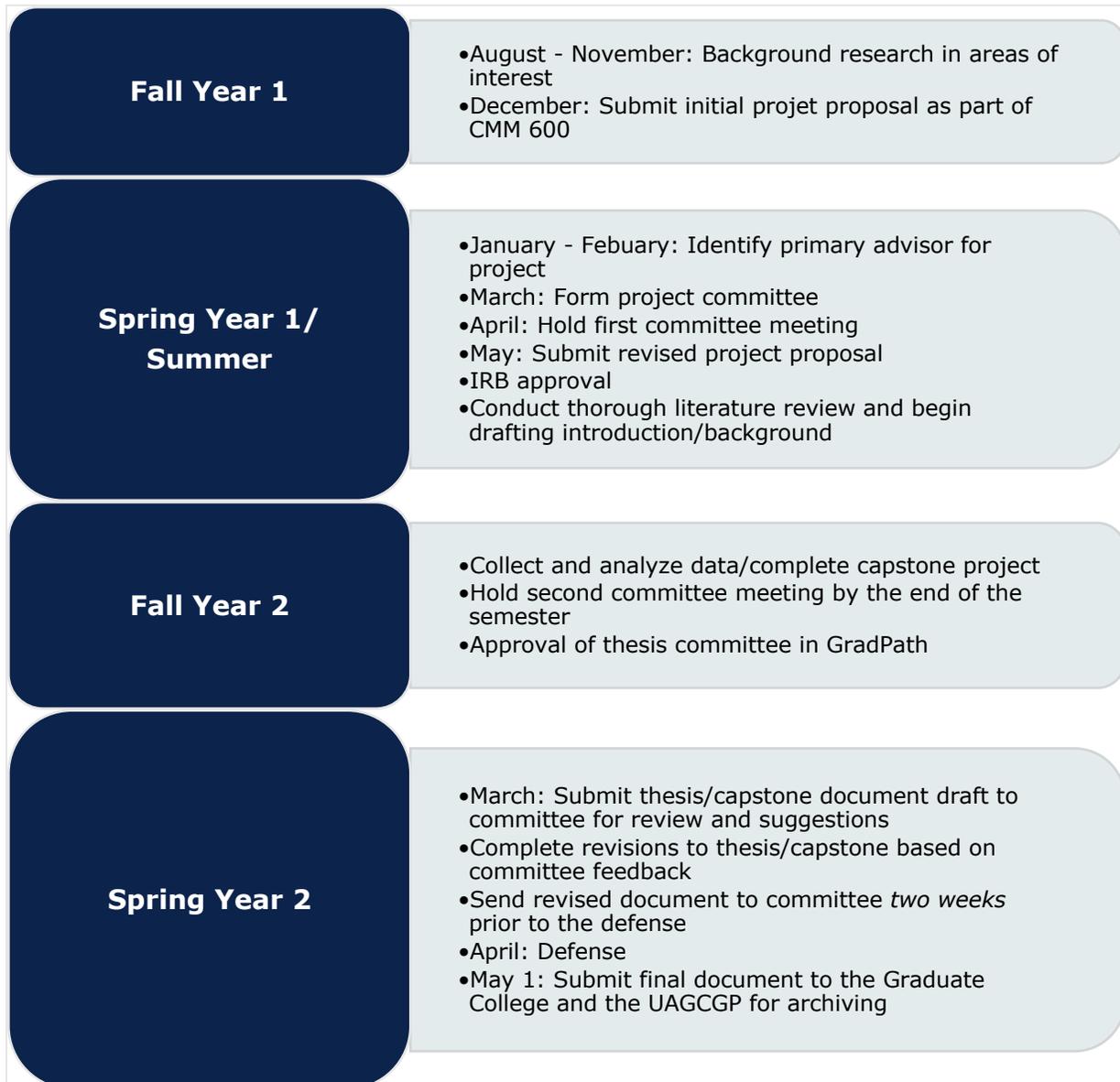
All students are required to complete [Collaborative Institutional Training Initiative \(CITI\) online training program](#) during CMM 600: Introduction to Genetic Counseling Research. Proof of this training is required for submission of applications to the IRB for review.

### **Additional Training**

In addition to CITI training, students who work with patients or non-anonymized patient data must take the University's [Health Insurance Portability and Accountability Act of 1996 \(HIPAA\) training](#). Students who conduct laboratory-based experiments that are funded by the National Science Foundation (NSF), the National Institutes of Health (NIH) or the National Institute of Food and Agriculture (NIFA) must also complete the University's online [Responsible Conduct of Research Training](#).

## Project Timeline

Below is the proposed minimum timeline for students to complete their research project. This timeline indicates the dates by which students are expected to reach the indicated milestones. Some students, especially those who work on existing projects, may move more quickly through this timeline. For students who would prefer not to work on their project over the summer term, they are expected to complete the requirements for the Spring Year 1/Summer semesters by the end of the Spring Year 1 term.



## *Thesis Project Guidelines*

### **Thesis Project Topics**

Thesis projects are defined by the generation of new data and/or knowledge. Thesis projects can include a variety of topics and methodologies in which the goal of the project is to further the knowledge in a particular field. Students who elect to complete a thesis project as part of their scholarly project requirements are encouraged to select topics that align with their interests and professional goals.

### **Thesis Committee Composition**

Master's thesis committees must consist of three members; at least two must be current members of the UAGCGP Graduate Faculty. If the third member is not a member of the UAGCGP Graduate Faculty, they must be approved by the Graduate College as a special member. The student's primary advisor will be the chair of the thesis committee. Students are required to obtain approval of their thesis committee from the Graduate College.

### **Written Thesis**

Students who choose a thesis option for their scholarly project are required to complete a formal written documentation of their thesis. The written thesis will include a thorough review of the relevant literature, the motivation to pursue the project, methods used to collect and analyze data, a description of the data and results generated by the project and a discussion of the results in the context of the broader field. A Master's thesis is typically between 30 - 60 pages in length. The written thesis is required to follow the UArizona Graduate College thesis formatting guidelines, available here: <https://arizona.box.com/grad-gsas-thesisformat>.

The final version of this report will be submitted to the UAGCGP Research Director to be archived by the program and to the [UArizona Campus Repository](#) for archiving by the University.

### **Oral Defense**

Students who complete a thesis project are required to hold an oral defense of their project. The defense consists of a 15 - 30-minute public lecture by the student discussing their work, followed by a private question-and-answer session with their committee. At the end of the private committee meeting, the student will be asked to leave the room and the committee will vote to pass, pass with revisions, or fail the defense. If the thesis is approved, the student can then submit the project to the Graduate College and the UAGCGP Research Director for final archiving. If the committee approves with revisions, the student will work with their primary advisor to complete revisions on their thesis. The primary advisor or the full committee will be responsible for approval the final, revised version of the thesis, depending on the preference of the committee.

Upon approval of the thesis defense, the committee will sign the Thesis Approval Page, which will be incorporated into the final thesis document prior to submission. See additional details and instructions here: <https://arizona.app.box.com/v/grad-gsas-thesisformat>.

## **Thesis Archiving**

A student completing a master's thesis (with enrollment in course number 910) is required to archive the thesis upon final approval of the thesis committee. The thesis will be added to the University of Arizona Campus Repository and to the national archive of dissertations and theses maintained by ProQuest/UMI. There is no charge to the student for archiving the thesis. The thesis must have been successfully defended and approved by the thesis committee with all final edits completed in time for the student to submit it online for archiving by the graduation deadline for the student's graduation term.

Upon submitting the thesis for archiving, the student may elect to file the copyright for it. Students who may wish to file the copyright can refer to this copyright explanation. There is a fee for copyrighting should a student choose that option.

Archiving the thesis does not preclude publication by other methods. Successful master's candidates are encouraged to submit thesis material for publication in scholarly or professional journals. Suitable acknowledgment must indicate the publication to be a thesis, or portion of a thesis, submitted in partial fulfillment of the requirements for a master's degree at the University of Arizona.

The UArizona Graduate College has a checklist that students can use to ensure they complete all requirements prior to submitting their thesis here: <https://arizona.app.box.com/v/grad-disstheis-checklist>.

## *Capstone Project Guidelines*

### **Capstone Project Topics**

Capstone projects are significantly more flexible than thesis projects. While thesis projects are expected to produce new, original data, capstone projects do not carry the same expectation. Capstone projects will represent the student's body of learning throughout the program into a single project with an area and focus driven primarily by the student and the primary advisor. Students should develop capstone projects that align with their interests and professional goals.

Some examples of potential capstone projects include:

- *Detailed case reports that describe one or several related cases that share common, unique features.* Case reports that fall under a capstone project may not necessarily add new information to the field but would allow the student to detail the aspects of a single case or series of similar cases. Case reports are expected to include information about the patient's medical and family history, genetic testing information, and a brief review of the relevant literature.

- *In-depth literature review.* Students may choose to perform an in-depth literature review of a particular genetic condition, psychosocial or counseling issue, testing methodology or other topic related to the field of clinical genetics and genetic counseling. Literature reviews are expected to synthesize existing knowledge in a novel way.
- *Significant community outreach program.* Students with a particular interest in community outreach and engagement may choose to develop a community outreach or engagement program in a local community. Students who elect this type of project will need to develop strong relationships with community members and deliver their program to a wide audience. These types of programs could include educational programs with local K-12 schools, a series of public-facing lectures or other programs designed to engage with the local community. These activities must be long-term projects in which the student develops a program and implements it at multiple locations/sites; single presentations or a single activity will not be accepted as a capstone project.
- *Develop educational material.* As part of their projects, students can also develop new educational materials or practice resources to provide additional information to healthcare providers, patients, or the general public on an important topic in clinical genetics and genetic counseling. Developing educational materials will require reviewing existing materials, identifying a gap in current materials, researching methodologies and best practices, and potentially having materials reviewed by professional or patient groups for feedback.

Students will work with their primary advisor and capstone committee to develop, refine, and complete their capstone project. Students will be required to hold committee meetings, produce written documents describing their progress with the capstone project, and present and defend their project to their committee.

### **Capstone Committee Composition**

The primary advisor will serve as the chair of a student's capstone committee. Each student is required to have at least three individuals on their capstone committee, including the primary advisor. Members of the capstone committee can include members of the UAGCGP Graduate Faculty, UA faculty and staff with expertise in a relevant area, practicing clinicians who are not UA faculty with relevant expertise, or others who would be appropriate to provide relevant feedback on a student's project.

### **Written Capstone Report**

Students who choose a capstone option for their scholarly project are required to submit a written report describing their project for approval by their capstone committee. The capstone report will include a thorough review of the relevant literature, a thorough description of the project and references to the primary literature. The capstone report is typically between 30 - 60 pages in length. Students who choose the capstone option must follow the UArizona Graduate

College thesis formatting guidelines, available here: <https://arizona.box.com/grad-gsas-thesisformat>.

The final version of this report will be submitted to the UAGCGP Research Director to be archived by the program. The capstone report is *not* submitted to the UArizona Campus Repository for archiving by the University.

### **Oral Presentation**

Students who complete a capstone project are required to give an oral presentation of their work. The presentation consists of a 15 - 30-minute public lecture by the student discussing their work, followed by a private question-and-answer session with their committee. At the end of the private committee meeting, the committee will either approve or recommend revisions for the capstone project. If the project is approved, the student can then submit the final report to the UAGCGP Research Director. If the committee requests revisions, the student will work with their primary advisor or the full committee to revise and complete the capstone project, depending on the decision of the committee.

### *Scholarly Project Remediation Procedure*

**Please see the UAGCGP Remediation section on**

Research Projects under **Institutional and Program Policies**.

### *Contact*

Dr. Valerie Schaibley leads the research component of the UAGCGP. For more information on research projects, contact Dr. Schaibley at: [vschaibley@arizona.edu](mailto:vschaibley@arizona.edu).

## **SUPPLEMENTAL ACTIVITIES**

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Various on- and off-campus activities are available for students to supplement their coursework. All activities should be documented by the student as Supplementary Activities as confirmation of advanced education opportunities

### **UArizona Campus Grand Rounds and Seminars**

In addition to Genetics and Genomic Grand Rounds, which are part of Gene 670 - Genetics Seminar, clinical departments across the UArizona Colleges of Medicine in Tucson and Phoenix offer grand rounds presentations that are open to students. Seminars are regularly offered through the UArizona Colleges of Nursing, Pharmacy, and Public Health that can be attended by the UAGCGP students.

Departments and Centers across the UArizona Colleges of Medicine in Tucson and Phoenix host medically focused grand round seminars throughout the academic year. Students are encouraged to attend relevant grand rounds to supplement their exposure to groundbreaking research and clinical applications. For more information on College of Medicine – Tucson and Phoenix events, visit

<http://medicine.arizona.edu/events> and  
<http://phoenixmed.arizona.edu/about/events>.

When possible, the program administration will notify students of upcoming seminars, conferences and webinars that may be of interest. There are also various specific seminars across campus, including

- Cellular and Molecular Medicine Joint Seminar Series and Student Seminar:  
<http://cmm.arizona.edu/events>
- Molecular and Cellular Biology Joint Seminar Series:  
<http://www.mcb.arizona.edu/events>

### **Case Conferences and Tumor Boards**

The UArizona Colleges of Medicine in Tucson and Phoenix host regular case conferences and tumor boards, including

- Fetal Cardiac Conference
- Fetal Ultrasound Conference
- Perinatal/Neonatal Conference
- Molecular Oncology Tumor Board
- HPB (hepatobiliary malignancy/disease)

### **Precision Medicine Symposium**

The Center for Applied Genetics and Genomic Medicine hosts an annual Precision Medicine Symposium during the Spring semester. The Precision Medicine Symposium brings together local and national leaders in precision medicine to discuss recent advances and current challenges in the field of genetics and genomic medicine. This event is free, and open to students. For more information, visit <http://precisionhealth.uahs.arizona.edu/precision-medicine-symposium>.

### **Teaching Positions**

Students in the UAGCGP can participate in undergraduate and graduate education through providing teaching assistance for a course or working with the University of Arizona Think Tank (<http://thinktank.arizona.edu/>), providing tutoring and educational assistance for fellow UArizona students. The UAGCGP does not currently have any designated teaching assistance positions, however, others may be available through various departments at the University. For more information on graduate teaching positions, students can directly contact departments of interest to inquire about teaching positions.

### **Community Outreach Events**

Students from the UAGCGP participate in a community outreach project during their second year as part CMM 695: Genetic Counseling Colloquium, under direction of the Outreach Coordinator, Chris Stallman.

## **National Society of Genetic Counselors Activities**

The [National Society of Genetic Counselors](#) (NSGC) hosts an annual meeting where Genetic Counselors throughout the country come together to present research and discuss new and emerging topics and trends in genetic counseling. A \$1000 travel stipend is allocated for each second-year student to offset expenses of attending national conferences, such as the NSGC conference.

NSGC Mentor Program allows NSGC members, including students, to find and connect with genetic counseling mentors. Find out more about the program here: <http://www.nsgcmentor.org/>.

## **Webinars**

Various national genetics organizations host webinars and other continuing education e-learning opportunities on special topics in genetics, genomics, and genetic counseling.

- National Society of Genetic Counselors: <http://nsgc.socious.com/page/online-store>
- MotherToBaby: <https://mothertobaby.org/health-professionals/>
- American College of Medical Genetics and Genomics: <https://www.acmg.net/>
- American Society for Reproductive Medicine: <http://connect.asrm.org/home>

## **American Indian Research Center for Health (AIRCH)**

AIRCH is a collaborative project between the Inter-Tribal Council of Arizona and the University of Arizona to encourage practical research that improves the health status of American Indian people, increases the number of American Indian scientists and health professionals engaged in research, educates non-Indians about the need for culturally appropriate health research within American Indian communities and research institutions, and includes Tribes as stakeholders in the processes of conducting research on their reservations and in the dissemination of the research findings. The Center sponsors events such as the Winter Institute Conference: Speakers and Cultural Competency Training. For more information, visit <http://nartc.fcm.arizona.edu/american-indian-research-center-health-airch>.

## **Leadership Education in Neurodevelopmental Disabilities (LEND) Program**

The UAGCGP offers interested students the ability to participate in the University of Arizona Leadership Education in Neurodevelopmental Disabilities (LEND) Program. We will work with the LEND program faculty to incorporate this training. UAGCGP students may use research projects in the LEND program for their graduate thesis.

Leadership Education in Neurodevelopmental Disabilities (LEND) Programs are graduate-level interdisciplinary leadership training programs federally funded

through the Maternal Child Health Bureau (MCHB). The purpose of The University of Arizona LEND (ArizonaLEND) training program is to produce leaders and innovators in the field of autism and other neurodevelopmental and related disabilities who are solidly grounded in their own disciplines and able to work collaboratively with colleagues in interdisciplinary settings, and to prepare trainees to anticipate, manage, and take advantage of changes in knowledge and health care delivery systems. ArizonaLEND will accomplish this by preparing trainees from diverse professional disciplines to assume leadership roles in their respective fields and by insuring high levels of interdisciplinary clinical competence.

ArizonaLEND provides education and training to long-term trainees in the following areas: clinical knowledge (clinical expertise, and interdisciplinary process), leadership, collaboration, and research. Trainees are involved in supervised clinical experiences with a wide variety of disorders and will receive individual mentoring that yields an individualized approach. ArizonaLEND training emphasizes interdisciplinary interaction, intensive leadership training and public health approaches. Long-term trainees will receive compensation through tuition and fees or stipend.

*What is required as an ArizonaLEND trainee?*

- 300 + hours of training divided into areas of Leadership, Research and Clinical Training
  - Weekly seminars held throughout one academic year
- Intensive Leadership Training with a 3-day Workshop prior to the beginning of the fall semester and 1-day Conflict Management seminar prior to the spring semester
- Clinical experiences during the training year with 1-day experiences in each of the following:
  - Border Health
  - Indian Health
  - Interdisciplinary multi-specialty medical care

## **GRADUATION REQUIREMENTS**

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The UA Graduate College outlines requirements for graduation from master's degree programs. In addition to these requirements, the UAGCGP has several program-specific requirements that must be met for graduation. For more information on the UA Graduate College master's degree graduation requirements, please visit <http://grad.arizona.edu/gsas/degree-requirements/masters-degrees>.

### *Transfer of Credit*

Per UArizona Graduate College policy, credits earned toward the completion of the UAGCGP at other institutions may be transferred to UArizona. However, no more than 20% of the minimum number of units required for the UAGCGP can be accepted from other accredited institutions. Credits can only be transferred if the

assigned grade in the transferring class was an A or B. Grades of transfer will not be used in determining GPA.

### *Coursework*

Students are required to successfully complete all coursework in the UAGCGP curriculum. Successful completion of the graduate courses is earned with an A or B. Students who receive a C or lower in a UAGCGP course will be required to undergo remediation per the UAGCGP Remediation Plan. Per UArizona guidelines, required courses with grades of D or E will not be eligible to count toward the graduation course requirements. However, courses with an earned grade of D or E will be used in the calculation of the GPA.

Students must maintain a minimum of GPA of 3.00 each semester and for graduation. A student whose cumulative GPA is below 3.0 for two consecutive semesters will be disqualified.

### *Plan of Study*

The UArizona Graduate College requires master's students to submit a Plan of Study in GradPath during the first few months into their graduate program. The Plan of Study must be submitted to the Graduate College no later than the second semester in residence.

The Plan of Study identifies

1. Courses the student intends to transfer from other institutions;
2. Courses already completed at the University of Arizona which the student intends to apply toward the graduate degree; and
3. Additional course work to be completed to fulfill degree requirements.

The Plan of Study for students in the UAGCGP must be approved by Program Director, Dee Quinn, prior to being submitted to the Graduate College.

When the Plan of Study is approved by the Graduate Student Academic Services office, you will be billed a one-time candidacy fee of \$35.00. Find more information on fees at <http://grad.arizona.edu/gsas/degree-requirements/candidacy-fees>.

### *Final Examination*

The UAGCGP does not require a final exam for graduation.

### *Degree Dates and Deadlines*

All requirements for graduation must be met by UArizona Graduate College deadlines. For a complete list of deadlines, visit <http://grad.arizona.edu/gsas/degree-requirements/important-degree-dates-and-deadlines>.

## TUITION/FINANCIAL AID

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Finalized tuition rates for the school year are announced by the Arizona Board of Regents each spring. As they are subject to change, we suggest you use the following link:

<https://tuitioncalculator.fso.arizona.edu/#/>

From the menu, select term, main campus, graduate degree, term 2017 or after and Medicine: Genetic Counseling Graduate Program.

The UAGCGP has approval from the Arizona Board of Regents for a special program fee. This \$3,000 per semester fee will be added to the cost of tuition. There is no difference in program fee rates for Arizona residents and nonresidents. These fees are automatically included in the above tuition calculator.

There is no special program fee for the summer semester between the 1<sup>st</sup> and 2<sup>nd</sup> year. Summer tuition for the Clinical Practicum can be calculated at the tuition calculator site above. Under "Select College, Program, or Differential Tuition" choose "Not Listed".

Please review the General Residency Guidelines at <http://www.registrar.arizona.edu/residency/general-residency-guidelines> to determine if you qualify as an Arizona Resident. If you are claiming Arizona Resident status, you will need to complete the Residency Classification Process at <https://www.registrar.arizona.edu/sorc/student>.

Resources are available at UArizona for assistance with applying for financial aid. Please visit <https://financialaid.arizona.edu/> or <https://grad.arizona.edu/funding> for more information on financial aid resources at UA.

Resources are available at UArizona for assistance with applying for financial aid. Students may contact the Financial Aid Office for assistance; visit <https://financialaid.arizona.edu/> or <https://grad.arizona.edu/funding> for more information on financial aid resources at UArizona. Students are responsible for all expenses related to completion of the degree requirements, including tuition, mandatory fees, program fees, and course fees where applicable. Here are two resources, which are good jumping off points for researching financial aid opportunities:

- <https://financialaid.arizona.edu/scholarshipuniverse>
- <https://grad.arizona.edu/ofce/welcome>

The Graduate College offers a limited number of awards in the form of Grad Access Fellowships (GAF's) - these are competitive, need-based awards for newly admitted students. Learn more about the eligibility criteria at <https://grad.arizona.edu/funding/opportunities/graduate-access-fellowship-and-tuition-awards>.

Additionally, the Graduate College has limited Financial Hardship Funds available for domestic graduate degree-seeking students who are experiencing a catastrophic, exceptional, and unexpected temporary financial difficulty or emergency that is impeding their degree completion in a timely manner. For more information, see <https://grad.arizona.edu/forms/application-graduate-college-financial-hardship-funds>.

## **UAGCGP SCHOLARSHIP**

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The UAGCGP Scholarship is a need-based award and requires that the student has submitted a FAFSA application. The Scholarship is a \$2,000 annual award (up to \$4,000 total for 2 years) that will be given to one incoming student per year. Students who receive the award in their first year, will automatically receive funding in their second year, as long as funding is available, and they remain in good academic standing in the program. The scholarship can be used to cover any portion of tuition, program fees, and mandatory fees for courses taken at the main campus of The University of Arizona (UArizona). The scholarship is applied directly to graduate tuition/fee charges and has no cash value. This award may not count as taxable income. You are encouraged to consult a professional tax advisor, as UArizona does not provide tax advice.

### **Eligibility:**

University of Arizona GCGP students who:

- Have been newly admitted for the term of award
- Are U.S. citizens or permanent residents
- Have filed the FAFSA form for the academic year of admission
- Have documented financial need as an undergraduate (e.g., Pell Grant eligibility, Work Study)
- Have a demonstrated unmet financial need as determined by the federally approved need assessment system. [Guidance on financial aid eligibility is available by contacting the Office of Scholarships & Financial Aid at 520-621-1858.]

### **To Apply:**

Send an email to Dee Quinn, UAGCGP Director, at [quinn@pharmacy.arizona.edu](mailto:quinn@pharmacy.arizona.edu), stating that you meet the eligibility criteria and that you would like to be considered for this scholarship.

### **Questions?**

Contact Kathy Ben, GCGP Coordinator, at (520) 626-2713 or [kben@arizona.edu](mailto:kben@arizona.edu).

*Awards are dependent on availability of funds.*

## **INSTITUTIONAL AND PROGRAM POLICIES**

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Students are expected to follow academic and institutional policies of the University of Arizona, University of Arizona Graduate College, Colleges of Medicine – Tucson and Phoenix, and University of Arizona Health Science.

University of Arizona policies on Student Life and Education can be found at <http://policy.arizona.edu/student-life-and-education>.

The University of Arizona Graduate College academic policies can be found at <https://grad.arizona.edu/policies/academic-policies>.

For information on the Grievance Policy from the University of Arizona Graduate College, visit <https://grad.arizona.edu/policies/academic-policies/grievance-policy>.

The University of Arizona Nondiscrimination and Anti-Harassment Policy can be found at <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>. In addition, the UA Graduate College policy on Discrimination and Sexual Harassment can be found at <https://grad.arizona.edu/policies/academic-policies/discrimination-and-sexual-harassment>.

Additional policies from the UA College of Medicine and the University of Arizona Health Sciences include:

- University of Arizona Health Sciences Student Occupational Exposure Policy: [http://medicine.arizona.edu/sites/medicine/files/student\\_occupational\\_exposure\\_policy.pdf](http://medicine.arizona.edu/sites/medicine/files/student_occupational_exposure_policy.pdf)
- College of Medicine Guidelines for Interactions with Commercial Interests: [http://medicine.arizona.edu/sites/medicine/files/com\\_coi\\_policy\\_12\\_3\\_2015\\_final\\_1.pdf](http://medicine.arizona.edu/sites/medicine/files/com_coi_policy_12_3_2015_final_1.pdf)

### *Academic Conduct and Integrity*

Students in the UAGCGP are expected to conduct themselves in a professional manner that reflects themselves, the University, and the graduate program in a favorable light. This includes maintaining high professional ethics, academic integrity, and honesty throughout the program.

Students in the UAGCGP are expected to follow University policies on academic integrity. UArizona policy on academic integrity can be found at <http://deanofstudents.arizona.edu/policies-and-codes/code-academic-integrity>.

### *UAGCGP Remediation Procedure*

#### **Academic Coursework**

For students who receive a C or below in a UAGCGP course, the Program Director will meet with the Course Director to determine the deficiencies in knowledge and appropriate level of remediation. This meeting will be documented electronically and stored by the Program Director. The Program Director and Course Director will meet with the student to review a remediation plan. This may include:

- Student may be asked to review course material, retake exams or develop written material that addresses the knowledge gaps in the

semester following this course. If sufficient progress is made toward achieving the course objectives, the remediation plan will be considered complete. Sufficient progress will be determined by the Course Director in consultation with the Program Director.

- If there is evidence of a significant gap in achieving the course objectives, student will need to retake the course the next time it is offered and receive a B or higher grade. Graduate students are not eligible for Grade Replacement Opportunity at the University of Arizona, in which the grade from the subsequent attempt of a course replaces a previous grade earned for the same course.
- If the student is required to retake the course and does not adequately achieve the course objectives after the second attempt, the student will be disqualified from the program.
- The student will be reminded that according to the University of Arizona Graduate College:
  - Students must maintain a minimum 3.00 grade-point average
  - After the first semester, a student with a cumulative GPA less than 3.0 will be placed on probation but allowed to register for one additional semester. The student will be blocked from registering after that unless their cumulative GPA reaches 3.0 at the end of the second consecutive semester of probation. Students whose GPA is below 3.0 for two consecutive semesters will be disqualified from their program. Disqualification results in the student being blocked from registration. Departments may petition for a [one semester extension](#) if the student has a high probability of succeeding.

### **Clinical Rotations**

For any student who fails to achieve a superior or pass in a clinical rotation, the Associate Program Director and Clinical Coordinator will meet with the Clinical Supervisor to outline the deficiencies and how best to address them. This meeting will be documented electronically and stored by the Associate Program Director. The Associate Program Director, Clinical Coordinator and Clinical Supervisor will meet with the student to review a remediation plan. The remediation plan could include:

1. The student may need to attend a specified number of clinical encounters to augment their skills.
2. If there is evidence of a significant gap in achieving the rotation objectives, student will need to retake the clinical rotation in the same area of practice but in a different rotation site. In the event the student does not pass the second rotation, the student will be disqualified from the program.

### **Research Projects**

The Research Director will monitor student progress toward the completion of their research projects in each of the four semesters of Introduction to Genetic Counseling Research (CMM 600) and GC Scholarly Project (CMM 909/910). If it is

determined that a student is not achieving the expected progress toward completion of the research project, the Research Director will meet with the student's primary advisor and the Program Director to determine the proper course of action. The Research Director, primary advisor, and Program Director will develop a remediation plan that includes timelines at that meeting, which will be documented electronically and stored by the Research Director. The Research Director will meet with the student, and the student's primary advisor as needed, to discuss the remediation plan. The Research Director, the primary advisor and the Program Director will meet six months following the Research Director's meeting with the student to assess the student's progress in their thesis research project.

### *Student Dress Code*

Students in the UAGCGP represent our program, both in the clinic and in their classes. The program expects that students present themselves in a positive, professional manner during classes, clinical rotations, and other program functions. Occasionally, an unscheduled opportunity for a unique professional interaction may occur outside of scheduled clinical hours. It is good practice for students to keep a set of clinic-appropriate clothing while on campus.

#### **Clinics**

The UAGCGP clinical dress code guidelines must be followed while students are in clinical rotations. While this policy reflects a consensus among the policies at all clinical rotation sites, individual clinical supervisors or institutions may require adherence to additional dress code guidelines at their sites. It is the responsibility of the student to maintain compliance with institutional dress code policies at each site.

Students should be dressed and groomed so as to not take attention or focus away from the patient. Students are expected to present themselves professionally at all times while they are in clinic.

1. *Clothing:* Professional fitting business attire must be worn during clinical rotations.
  - a. Professional attire includes, but is not limited to:
    - i. Slacks (no cargo or capri pants)
    - ii. Dress shirt/blouse/sweater
    - iii. Skirts or dresses with hemlines no higher than three inches above the knee
  - b. Clothing must not be too tight or too loose fitting to be revealing. Clothing must fit so that inappropriate exposure does not occur during normal work activities.
  - c. Clothing should be clean, neat and in good condition.
  - d. Non-spandex leggings may only be worn only with a long tunic or dress.
  - e. Tank tops may be worn only if they are covered with a coat, jacket, or sweater as the outer garment.
  - f. The following are not allowed to be worn:

- i. Hooded apparel
  - ii. Spandex
  - iii. Halters, crop tops, or midriffs
  - iv. Revealing clothing
  - v. Shorts
  - vi. Denim pants, shirts, or jackets
  - vii. Athletic pants
  - viii. Athletic shirts
  - ix. Tee shirts
  - x. Torn, dirty or frayed clothing
  - xi. Items displaying derogatory or offensive statements or pictures
2. *Shoes:* Professional closed-toe shoes with a closed heel or heel strap must be worn at all times. Slippers, sandals, flip flops, and athletic/hiking shoes/boots are not allowed. Shoes should be clean and in good repair.
3. *Personal Hygiene and Grooming:*
- a. Body and hair cleanliness are mandatory.
  - b. Colognes, perfumes, aftershaves, heavily scented body lotions and cigarette smoke odor should be avoided, as some patients and staff may have a reaction to fragrances and odors.
  - c. Fingernails are to be kept clean and neatly trimmed. Nail polish must be intact (no chipping, etc.). Artificial fingernails are not allowed.
  - d. Hair must be clean, combed and neatly trimmed. Sideburns, moustaches, and beards must be neatly trimmed. Only natural hair colors and natural highlights are permitted.
  - e. In some cases, long hair will need to be contained to prevent contact with equipment or supplies.
4. Bandanas, hats, and caps are prohibited, except where required and/or necessary for completion of clinical activities. Headpieces worn for religious purposes are allowed.
5. Body art/tattoos must be appropriately covered or minimally visible while on duty. Visible tattoos that are obscene, lewd, crude, or portray or represent nudity, vice or crime or contain profanity are strictly forbidden. Students will be required to cover such tattoos.
6. Body jewelry/facial piercings, other than one earring in each ear lobe are prohibited. Earrings that dangle more than one inch from the lobe may not be worn.
7. Hand and arm jewelry are not allowed below the elbow with the exception of an engagement and/or marriage ring with stone/band and low-profile wristwatch.
8. ID badges must be readily visible and worn above the waist at all times during clinical rotations. The face of the ID badge must remain visible for identification and safety reasons and must not be defaced with stickers, ribbons, or pins so that the face or identifying words are covered.

If a student arrives at clinic improperly dressed or groomed, their supervisor may instruct the student to return home and make appropriate changes. The clinical supervisor will notify the UAGCGP in writing of the dress code violation.

Consequences for dress code violations are:

- 1<sup>st</sup> violation: verbal warning
- 2<sup>nd</sup> violation: written warning
- 3<sup>rd</sup> violation: reduction in a student's clinical rotation evaluation, and possibly class grade

## **Classes**

It is important to remember that students represent the UAGCGP, even when they are in class. While dress code requirements are relaxed for classes compared to the clinic, it is important to maintain a professional appearance while on campus.

Students should not wear tight-fitting or revealing clothing during classes. Body and hair cleanliness are greatly appreciated by your program faculty and fellow students. Individual course instructors may have specific dress code requirements for their course. It is the responsibility of the student to remain in compliance with each course's dress code policy.

## **Dress Code Policy Exemptions**

Exemptions to the dress code policy may be made based on the student's religious beliefs, medical condition, disability, or other compelling reason. Students seeking exemptions to the dress code policy can contact the UAGCGP Program Director and submit a written request for exemption. Exemptions will be approved in writing by the Program Director. Exemptions for clinical rotations will be communicated to the student's clinical supervisors in writing by the Program Director.

## *UAGCGP Conflict of Interest Standard Operating Procedure*

### **A. Purpose**

The University of Arizona Genetic Counseling Graduate Program (UAGCGP) recognizes that issues may arise when program faculty have employment engagements that could interfere with their responsibilities to the UAGCGP, specifically, when faculty have appointments in more than one genetic counseling graduate program. The program will work closely with the [UA Conflict of Interest \(COI\) Program](#) to prevent and resolve any issues that may arise due to a faculty member's external commitments.

### **B. Scope**

This procedure applies to UAGCCP leadership and faculty with an appointment with an external genetic counseling graduate program.

### **C. Responsibility**

It is the responsibility of the UAGCGP Program Director and Associate Program to Director to ensure compliance to this procedure.

It is the responsibility of the Program faculty members with an appointment with an external genetic counseling graduate program to comply with the guidelines in this procedure.

#### **D. Procedure**

##### *External Genetic Counseling Graduate Program Appointments*

Any program leadership or faculty member with an appointment with an external genetic counseling graduate program will be required to submit a Conflict of Commitment form to the UA Conflict of Interest Program under the [UA Conflict of Commitment Policy](#). The University's Conflict of Commitment Policy requires only Full Time (generally >0.5 FTE) appointed personnel to request approval for any outside professional commitments or outside employment. The UAGCGP will require that all faculty or leadership with an appointment with an external genetic counseling graduate program complete a Conflict of Commitment form to the UA Conflict of Interest Program, regardless of their FTE percentage.

The University's COC Policy can address the concerns that may arise among program leadership or faculty. If the program becomes aware of any issues resulting from a program leadership member's conflict of interest, the individual will be replaced according to the UAGCGP's Program Leadership Absence Policy until the conflict can be resolved.

The UAGCGP will provide documentation to students describing all program faculty who submit Conflict of Commitment documentation to the UA Conflict of Interest Program due to an appointment with an external genetic counseling graduate program. These forms will be sent to each student and securely stored in the student's file in the Program Director's office.

##### *Program Admission*

The UAGCGP values the feedback of program applicants from our faculty and leadership. Program faculty who have appointments in an external genetic counseling graduate program will be invited to interview and evaluate applicants to the UAGCGP, according to their degree of involvement in the program. While the input of all program faculty will be taken into account when evaluating applicants to the UAGCGP, the final decision regarding program admissions will be at the discretion of the Program Director and the Associate Program Director. If either the Program Director, the Associate Program Director, or both have a conflict of interest due to an appointment with an external genetic counseling graduate program, a different member of the program faculty who does not have an appointment with an external genetic counseling graduate program will be chosen to replace the Program Director and/or Associate Program Director to make final decisions regarding program admissions.

##### *Monitoring Faculty Calendars*

In addition, UAGCGP faculty with appointments outside of the University may also have scheduling challenges related to their multiple commitments. The UAGCGP will

monitor these faculty calendars carefully to accommodate committee meetings, classes, and applicant interviews with their schedules as much as possible. When a member of the faculty has an appointment with an external genetic counseling program, time conflicts will be resolved through communications between the Program Directors of each program.

### *Criminal Background Checks and Fingerprint Clearance Cards*

Students in the UA Genetic Counseling Graduate Program are required to obtain a valid fingerprint clearance card in accordance with ARS § 15-1881 and provide a copy of the card to the UAGCGP administration. Individuals may apply for fingerprint clearance cards through the Arizona Department of Public Safety: <https://www.azdps.gov/services/public/fingerprint>.

In addition to the requirements for the fingerprint clearance cards, some clinical institutions require that students submit to additional fingerprinting as well as undergo comprehensive background checks in order to receive clearance from these institutions to participate in clinical rotations.

Neither the University of Arizona nor the Genetic Counseling Graduate Program pays or reimburses for the expenses related to background checking or fingerprinting associated with such background checks.

For more information, please review the University of Arizona College of Medicine [Policy on Fingerprint Clearance Cards and Background Checks](#).

### *Protected Health Information and HIPAA Policy*

As a student, you must learn and abide by the health information privacy requirements of the Health Insurance Portability and Accountability Act, or HIPAA. These requirements, known as the HIPAA Privacy Rule, went into effect April 14, 2003. You will be required to undergo HIPAA training as part of your compliance preparation for clinical rotations. Certain clinical rotations may require additional institution-specific HIPAA training. It is the responsibility of the student to remain in compliance with clinical rotation requirements. The University of Arizona has a policy on [HIPAA privacy](#).

### *Liability Insurance*

The University of Arizona provides professional liability insurance for students enrolled in university professional training programs. For more information, see the website for the [University of Arizona Office of Risk Management](#).

### *Immunization Requirements*

Genetic Counseling Graduate Program students enrolled at the University of Arizona must meet expanded immunization requirements. Failure to comply with the immunization requirements in a timely manner will prevent your course registration, your financial aid disbursement, and your ability to obtain a parking permit. Immunizations must meet the guidelines established by the Center for

Disease Control to be considered valid. It is recommended that students use the [AAMC Standardized Immunization Form](#) as guide to meeting these requirements. Compliance with expanded immunizations is strictly the student's responsibility.

Required immunizations or proof of immunity include:

- Measles, Mumps and Rubella (MMR)
- Hepatitis B
- Hepatitis B Surface Antibody Quantitative Titer
- Tetanus-diphtheria-pertussis (Tdap)
- Tuberculosis Screening
- Varicella
- Influenza

Individual rotation sites may require additional immunizations and/or screening to participate in clinical rotations at that site. For more information, visit <https://health.arizona.edu/comcopimmunizationuploads>.

### *Notification of Acute or Chronic Health Conditions*

Genetic Counseling students have an obligation to inform faculty of any acute or chronic health conditions experienced by students which may affect clinical assignments. Students are required to inform the Clinical Rotation Coordinator and the Clinical Rotation Supervisor via email and/or phone if they are unable to attend an assigned rotation due to illness.

### *Student Occupational Exposure Policy*

It is the policy of The University of Arizona Health Sciences (UAHS) that all students who are exposed (i.e., needle stick, inhalation, mucus membrane or skin exposure or percutaneously to infectious agents and/or hazardous materials including blood/body fluids) while engaged in a University-sponsored educational program seek and obtain prompt medical attention, including counseling, prophylactic drug treatment, and baseline and follow up laboratory values, as necessary.

Read the complete UAHS policy at

[https://medicine.arizona.edu/sites/default/files/student\\_occupational\\_exposure\\_policy.pdf](https://medicine.arizona.edu/sites/default/files/student_occupational_exposure_policy.pdf).

### *UArizona Graduate College Minimum Academic Requirements*

A student cannot earn a graduate degree or certificate unless he or she has achieved a cumulative grade-point average of 3.00 or higher on all course work taken for graduate credit, whether or not the courses are offered in satisfaction of the specific requirements for a specific graduate program. A student whose cumulative GPA is below 3.0 for two consecutive semesters will be disqualified. Programs may allow students to take additional course work while in non-degree status. In order to graduate, the student must apply for readmission to the Graduate College through their graduate department. Readmission is not guaranteed.

### *Grievance Policy*

Should a graduate student feel they have been treated unfairly, there are a number of resources available. With few exceptions, students should first attempt to resolve difficulties informally by bringing those concerns directly to the person responsible for the action, or with the student's graduate advisor, the department head, or the immediate supervisor of the person responsible for the action. If the problem cannot be resolved informally, the student may be able to file a formal grievance. More information on the UArizona Graduate College Grievance Policy and instructions on how to submit a formal complaint, visit <https://grad.arizona.edu/policies/academic-policies/grievance-policy>.

### *Academic Probation*

Students who have a cumulative grade-point average of less than 3.0 at the end of a given semester will be placed on academic probation. Students on probation are required to meet with the Program Director to discuss the steps to be taken to remediate the problems that led to the probationary status and devise a written plan of action. After the first semester a student who completes with a cumulative GPA less than 3.0 will be allowed to register for one additional semester. The student will be blocked from registering after that unless their cumulative GPA reaches 3.0 at the end of the second consecutive semester of probation. Students whose GPA is below 3.0 for two consecutive semesters will be disqualified from their program. Disqualification results in the student being blocked from registration. Departments may petition for a [one semester extension](#) if the student has a high probability of succeeding.

### *Withdrawal from the Program*

Students who wish to withdraw from the UAGCGP following the match and prior to the start of the academic year must notify the Program Director in writing. The Program Director may refer to the ABGC for a potential match violation according to the [Rules of Participation](#) for the Genetic Counseling Admissions Match.

All efforts will be made by the Program Administration to accommodate the needs of each student during their program. However, situations arise in which students may wish to withdraw from the UAGCGP. The student must notify the Program Director in writing and the University Registrar. For more information, visit <https://grad.arizona.edu/policies/academic-policies/withdrawal-university>.

### *Dismissal from the Program*

Failure to meet the UAGCGP's academic or professional conduct expectations can result in disciplinary action, including dismissal from the program. The Program Leadership regularly reviews student performance and will determine if dismissal from the program is appropriate.

## **ABOUT THE UNIVERSITY OF ARIZONA AND TUCSON**

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Established in 1885, the University of Arizona, the state's super land-grant university with two medical schools, produces graduates who are real-world ready through its 100% Engagement initiative. Recognized as a global leader, the UA is also a leader in research, bringing more than \$606 million in research investment each year, and ranking 21st among all public universities. The UA is advancing the frontiers of interdisciplinary scholarship and entrepreneurial partnerships and is a member of the Association of American Universities, the 62 leading public and private research universities. It benefits the state with an estimated economic impact of \$8.3 billion annually.

The University of Arizona is located in Tucson, Arizona, with an additional biomedical campus located a short drive away in Phoenix. Tucson is located in the Sonoran Desert and boasts beautiful weather, with an average 350 days of sunshine every year. With access to local national parks, a thriving city, local art and live music, and world-class museums, Tucson is a great place to live no matter your interests outside of class.

*We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.*

Learn more:

- [University of Arizona Graduate College Life in Tucson](#)
- [Visit Tucson](#)

## RESOURCES

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### On Campus Resources:

- UA Graduate College information for New and Current Students: <https://grad.arizona.edu/new-and-current-students>
- The Strategic Alternative Learning Techniques (SALT) Center is the leading comprehensive academic support program for college students who learn differently. <http://www.salt.arizona.edu/>
- The University of Arizona Think Tank is dedicated to ensuring every student's academic success. With this in mind, the UA established the Think Tank: a tutoring service for students, by students. <http://thinktank.arizona.edu/>
- The Health & Wellness for Students provides comprehensive services and support for the physical, mental and emotional well-being of our students. <http://www.arizona.edu/health-wellness-students>
- The Office of Diversity and Inclusion (ODI) was created in 2012 to elevate diversity and inclusion as an important strategic priority for the UA Colleges of Medicine. The office includes the Office of Global and Border Health and the Hispanic Center of Excellence. <https://diversity.medicine.arizona.edu/about/home>

- Academic policies and support programs specific to graduate students can be found at <http://grad.arizona.edu/gsas>
- The University of Arizona Office of Financial Aid: <https://financialaid.arizona.edu/>

### **Professional Resources:**

National Society of Genetic Counselors - <http://www.nsgc.org/>

American Board of Genetic Counseling – <https://www.abgc.net/home/>

American College of Medical Genetics and Genomics - <https://www.acmg.net/>

American Society of Human Genetics - <http://www.ashg.org/>

Accreditation Council for Genetic Counseling - <http://www.gceducation.org/>

Genetic Alliance – <http://www.geneticalliance.org/>

National Organization for Rare Disorders - <https://rarediseases.org/>

### **Advocacy Groups in Tucson and Phoenix:**

Alport Syndrome Foundation - <http://alportsyndrome.org/>

Anthony Bates Foundation - <http://www.anthonybates.org/>

Cystic Fibrosis Foundation, Arizona Chapter - <https://www.cff.org/Arizona/>

Epilepsy Foundation of Arizona - <https://epilepsyaz.org/>

Facing Our Risk of Cancer Empowered, Phoenix Network - <http://www.facingourrisk.org/get-support/local-groups/arizona-phoenix.php>

Huntington’s Disease Society of America, Arizona Chapter - <http://arizona.hdsa.org/>

Jewish Genetic Diseases Center of Greater Phoenix - <http://jewishgeneticsphx.org/>

Polycystic Kidney Disease Foundation, Phoenix Chapter - <https://pkdcure.org/chapter/phoenix/>

Sharing Down Syndrome Arizona - <https://www.sharingds.org/>

Teal it Up - <http://tealidup.org/>