First Year, FALL (15 semester credit hours)

Foundations of Genetic Counseling I
Course Number: GCFGC 64001
(Credits: 4, Fall)
Course Director: Daniel Riconda, MS, CGC
Course Description This course is designed provide students with the foundation on which to build the skills to be a successful genetic counselor. Students will explore contexts and situations in genetic counseling that practicing genetic counselors are likely to face. They will learn procedures for obtaining an accurate and relevant family history, constructing a pedigree, assessing modes of inheritance, making a diagnosis, determining risks, and assessing the need for psychosocial support and will explore diverse counseling theories. The course will include an overview of the history of the profession to provide a framework for understanding the current state of the profession. Students will be introduced to subspecialties within the profession through focused three-week blocks covering prenatal, pediatric, adult, and cancer genetic counseling and will obtain foundational knowledge specific to these subspecialties. They will also explore the role of genetic counselors in working with clients with various psychosocial needs.

Medical Genetics I
Course Number: GCMEG 63001
(Credits: 3, Fall)
Course Co-Directors: Lindsay Burrage, MD, Ph.D. & Pilar Magoulas, MS, CGC
Course Description: This course is designed for genetic counseling students in their first year of training. This course provides an overview of fundamental principles of cytogenetics, molecular genetics, cancer genetics, population genetics, biochemical genetics and skeletal genetics. This course will be taken in sequence with the Medical Genetics II with both live and pre-recorded lectures. This course will combine didactic lectures with case studies, problem sets, quizzes, and short presentations by the students to reinforce topics presented in the lectures. For example, there are three hours per week: One hour will be live, one hour will be video and one hour will include a combination of topic reviews, assignments, quizzes, and short presentations.

Embryology
Course number: GCEMB 62003
(Credits: 2, Fall)
Course Co-Directors: Mary Brandt, MD & Salma Nassef MS, CGC
Course Description: This course is designed for genetic counseling students in their first year of training. Students will understand the basics of normal human development and will apply this knowledge to a comprehensive understanding of the anatomy of the newborn and adult. Additionally, this course provides a basis for explaining the etiology and process of developmental anomalies. It also provides an introduction to the treatment of patients with congenital anomalies and counseling options for families of affected individuals.

Health Behavioral Counseling
Course Number: HPHBC 62201
(Credits: 2, Fall)
Course Co-Directors: Beth Garland, Ph.D., & Josh Utay, M.Ed., CPO, & Robert McLaughlin, Ph.D.
Course Description: This course introduces counseling and behavioral science theories, skills, and tools to enhance learners' communication skills and understanding of the process of health behavior change. Behavior change stages and processes are introduced using the Transtheoretical Model and social learning theories, with a focus on applying Motivational Interviewing skills. Learning activities include role play, observation of self-help support group sessions, simulated patient encounters, and critical reflection to help learners develop an intimate understanding of the process of change and increase empathy for patients attempting to change health behaviors.

Preparing for Genetic Counseling in Practice
Course Number: GCGCP 61001
(Credits 1, Fall)
Course Director: Salma Nassef, MS, CGC & Sarah Huguenard, MS, CGC
Course Description: This course is designed to provide students with a practical foundation in preparing for clinical participation in various practice areas. This hands-on course will build on didactic content learned from Foundations of Genetic Counseling I and serve as an applied course. Students will have the opportunity to practice chart review, interpretation of screening and testing reports, pedigree risk assessments, online risk models, simulated coordination of testing, application of practice guidelines in a clinical context, completion of requisition forms, and identification of genetic testing options based on insurance considerations. This practice-based exploration of clinical genetic counseling will equip students to participate in patient care on clinical rotations.

Research Methods in Genetic Counseling
Course Number: GCRGC 61001
(Credits 1, Fall)
Course Director: Sarah Scollon, MS, CGC
Course Description: This course will introduce students to the tools necessary to conduct clinical research studies in genetics and the foundations necessary for their thesis project. Students will discuss current topics significant to the field of genetic counseling and the roles of genetic counselors in the field of research. The course will explore how research designs including quantitative, qualitative, and outcomes research are utilized in the field of genetic counseling. Students will be introduced to the use of interview and survey techniques in genetic counseling research as well as the basics in obtaining research funding. Courses will be a combination of lecture, student discussion and presentation.

Journal Club I

Course Number: GCJOC 61001
(Credit 1, Fall)
Course Director: Tanya Eble, MS, CGC & Lauren Westerfield, MS, CGC
Course Description: This course covers a review of current literature relating to advancements in genetic counseling, including the risk, diagnosis, and management of genetic diseases. Through this course, students will be able to: 1) review published literature and summarize significant findings, 2) analyze and critically evaluate data from the literature, and 3) present relevant data to provide an overview of key findings published in the literature.

Clinical Practicum I*
Course Number: GCCLP 71001
(Credits 1, Fall)
Course Co-Directors: Tanya Eble, MS, CGC; Salma Nassef, MS, CGC; & Andrea Lewis, MS, CGC
Course Description: Each Clinical Practicum I through V introduces students to a new clinical training experience with the opportunity to observe cases in a variety of clinical settings. At each site, students observe cases one day per week on a rotating schedule under the supervision of genetic counselors or other medical staff. This is an opportunity for students to familiarize themselves with different components of the genetic counseling session, observe different counseling styles, and compare and contrast how different clinical sites operate. At the conclusion of the fall semester, students should be able to prepare for a case and to obtain a three-generation family pedigree. Additional skill acquisition may occur at the discretion of the clinical supervisors.

*Clinical Practicum I, II, IV, and V will each be completed at a different site, cumulatively to expose each student to the following four core specialty clinical services. Fall Practicum III is not intended as a core clinical specialty, as described in that course description. Most of the following sites are confirmed and await affiliation contracts pending the BCM approval process for the MSGC educational program. A template for affiliation agreements has been approved by General Counsel and has been vetted by directors at several of these sites.

Proposed Clinical Practicum Sites:

Prenatal: Harris Health/Ben Taub General Hospital; Texas Children's Pavilion for Women; TCH community clinics (Sugarland, Katy, Woodlands, Northwest); Methodist Hospital; Fetal Center; The Center for Women and Children for the Texas Children's Health Plan; Consultagene Clinic;

Pediatric (also cancer): Texas Children's Pediatric; The Center for Women and Children for the Texas Children's Health Plan; TCH Woodlands; TCH West Campus

Adult (also Cancer): Harris Health/Smith Clinic; VA; McNair

Cancer: Lester and Sue Smith Breast Center at Baylor College of Medicine;

Outreach (samples: distant, out-of-state, or global practicum placements may be considered for advanced practicum students only on an individual basis, pending verification of state authorization and vetting by program leadership):

- The Children's Hospital of San Antonio

First Year, SPRING (19 semester credit hours)

Foundations of Genetic Counseling II
Course Number: GCFGC 63002
(Credits: 3, Spring)
Course Director: Daniel Riconda, MS, CGC
Course Description: This course is designed continue to equip students for their ongoing clinical rotations. Emphasis will be on learning to communicate effectively a broad spectrum of genetic concepts to patients. This includes communicating both orally and in writing information about genetic disorders, procedures, laboratory tests, and risks. Students will practice oral presentation skills and develop patient education aids, which they will use in directed role-plays and standardized patient encounters. They will build upon the skills obtained in Foundations of Genetic Counseling I and will learn how to facilitate decision making, conduct psychosocial assessments, practice critical thinking, and employ ethical practice in genetic counseling. They will also build upon the specialty knowledge base obtained in Foundations of Genetic Counseling I to obtain more detailed knowledge particular to the subspecialties, including prenatal, pediatrics, adult, cancer, and laboratory sciences.

Medical Genetics II
Course Number: GCMEG 63002
(Credits 3, Spring)
Course Director: Lindsay Burrage, MD, Ph.D. & Pilar Magoulas, MS, CGC
Course Description: This course is designed for genetic counseling students in their first year of training. This course provides an overview of genetic disorders encountered in prenatal genetics, pediatric genetics and, adult genetics, as well as advanced topics in biochemical genetics. An emphasis will be placed on etiology, diagnosis, prognosis, differential diagnosis, and management of these disorders. This course will be taken in sequence with Medical Genetics I with both live and pre-recorded lectures. This course will combine didactic lectures with case studies, problem sets, quizzes, short presentations by the students, and direct patient and parent interaction to reinforce topics presented in the lectures. For example, there are three hours per week: One hour will be live, one hour will be video and one hour will include a combination of topic reviews, assignments, quizzes, and short presentations.

Medical Ethics
Course Number: GCETH 62201
(Credits 2, Spring)
Course Director: Christi Guerrini, JD, MPH
Course Description: This course introduces students from the School of Allied Health Sciences and the School of Medicine to basic concepts and terms of clinical ethics and to use of the Ethics-Work-Up to resolve clinical ethics cases. The course is comprised of didactic lectures for all learners (live and pre-recorded), small group sessions with a genetic counseling focus, and clinical ethics rounds. Topics covered include professionalism, confidentiality and privacy,

informed consent, decision-making capacity, end-of-life decision making, health policy and responsible resource management, and ethical issues in human subject research.

Ethical and Legal Issues in Human Genetics: Ethics
Course Number: GCELI 61000
(Credit 1, Spring)
Course Director: Sarah Huguenard, MS, CGC
Course Description: This course focuses on the legal and ethical issues in the practice of genetic counseling and clinical genetics. The course will utilize small group genetic counseling focused sessions in combination with other learners. The NSGC Code of Ethics will also be discussed and applied in clinical and research case scenarios. Through the exploration of topics such as eugenics, incidental findings through genetic testing including non-paternity and consanguinity, genetic privacy and GINA, and prenatal testing/PGD students will begin to appreciate ethical considerations and ethical decision making within the scope of clinical practice.

Fundamentals in Epidemiology
Course Number: GCFEP 62000
(Credits 2, Spring)
Course Director: Michael Scheurer, Ph.D. & Philip Lupo, Ph.D.
Course Description: This course introduces the basic principles and methods of epidemiology, with an emphasis on critical thinking, analytic skills, and application to clinical practice and research. Topics include outcome measures, methods of adjustment, surveillance, quantitative study designs, and sources of data. The course is designed for professionals intending to engage in, collaborate in, or interpret the results of epidemiological research as a substantial component of their career.

Genetic Epidemiology and Population Genetics
Course Number: GCEPG 61000
(Credits 1, Spring)
Course Director: Philip Lupo, Ph.D.
Course Description: This introductory level course in genetic epidemiology will build upon the topics covered in foundations in epidemiology with focus on the design of studies to identify disease-gene associations. The lectures concentrate on the two most common study designs for genetic association studies: case-control studies and case-parent trios, and address disease-gene associations, gene-environment interactions, and maternal genetic effects. Students will learn about study design and data analysis through class lectures, independent readings, completion of problem sets, and class discussions.

The objectives of this course are to provide the student with an understanding of complex genetic diseases; population genetics; common designs for studies of disease-gene association; approaches for evaluating gene-environment interactions; and approaches for assessing maternal genetic effects. At the conclusion of the course, students will be able to design case-control and family-based studies to detect disease-gene associations, and should have an

understanding of the various statistical approaches that can be used to analyze the resulting data.

Thesis I
Course Number: GCTHE 81001
(Credits 1, Spring)
Course Director: Sarah Scollon, MS, CGC
Course Description: This course will continue the work begun in Genetic Counseling Research Methods. The course is designed to prepare students for submission of their thesis projects. This course will provide the framework for development of strong thesis projects from evaluation of ideas through execution of the project to publication of the data. Students will learn about choosing research mentors, writing human research protocols, obtaining informed consent, developing research projects, study design, and presentation of research in the form of abstracts and posters. Through this course, students will present ideas and outlines of their thesis project for evaluation by their instructors and peers and will submit a protocol to the IRB for their thesis project. Thesis Advisory Committee members will be identified and thesis proposal will be presented to class and advisors for candidacy.

Psychosocial Practicum I
Course Number: GCPSP 62001
(Credits: 2, Spring)
Course Co-Directors: Salma Nassef, MS, CGC; Patti Robbins-Furman, MS, CGC; & Tammy Solomon, MS, CGC
Course Description: This course is designed to introduce and expand on various concepts pertaining to psychosocial aspects of a genetic counseling session. This will be a combined class incorporating both first and second year genetic counseling students. Students will learn through didactic lectures, group discussion, role-plays, interactive sessions, and reflective exercises. Through the exploration of topics such as ethics, cultural competency, difficult patients, and autonomy, students will be able to develop skills specific to clinical practice.

Journal Club II
Course Number: GCJOC 61002
(Credit 1, Spring)
Course Director: Tanya Eble, MS, CGC & Lauren Westerfield, MS, CGC
Course Description: This course covers a review of current literature relating to advancements in genetic counseling, including the risk, diagnosis, and management of genetic diseases. Through this course, students will be able to: 1) review published literature and summarize significant findings, 2) analyze and critically evaluate data from the literature, and 3) present relevant data to provide an overview of key findings published in the literature.

Clinical Practicum II (for site listings, see Clinical Practicum I, First Year, Fall)
Course Number: GCCLP 72002
(Credits 2, Spring)

Course Co-Directors: Tanya Eble, MS, CGC; Salma Nassef, MS, CGC; & Andrea Lewis, MS, CGC
Course Description: Students will rotate through three clinical sites for 6-week blocks. During this semester students begin to take on additional case responsibilities. These responsibilities may include case preparation, including review of the medical records and literature, obtaining family, medical and pregnancy histories, providing inheritance counseling, presenting cases to the medical staff, participating in case conferences, and composing counseling letters.

Laboratory Course
Course Number: GCLAB 71000
(Credits: 1, Spring I)
Course Director: Melissa Hsu, MS, CGC & Sandra Peacock, MS, CGC
Course Description: This course is designed for genetic counseling students at the end of their first year of training. Through this course students will become familiar with current molecular, biochemical, and cytogenetic techniques. Additionally, through this course students will understand the basics of the role of a laboratory genetic counselor, processes to enhance communication with the laboratory, and the distinctive role of the diagnostic laboratory in patient care.

Second Year, FALL (15 semester credit hours)

Clinical Practicum III (for site listings, see Clinical Practicum I, First Year, Fall)
Course Number: GCCLP 72003
(Credits 2, Fall (June-July))
Course Director: Daniel Riconda, MS, CGC & Salma Nassef, MS, CGC
Course Description: This rotation provides students with extensive clinical training and increasing case responsibilities. Students will participate in a (minimum) 5 week full time practicum. The internship can be in or outside of the state of Texas for students in good standing pending student interest and clinic site availability. Practicum III provides students with the opportunity to train in varied geographic settings, to work with novel patient populations, and to pursue individual clinical interests.

Advanced Genetic Counseling I
Course Number: GCAGC 62001
(Credits: 2, Fall)
Course Director: Daniel Riconda, MS, CGC
Course Description: This course continues the work begun in Foundations of Genetic Counseling I and II. This course includes a discussion of the current state of the genetic counseling profession with a focus on current professional issues, including issues such as professional development, standards of practice, expanded roles of genetic counselors and cultural competency. The course will introduce student thesis projects as a group and address presentation skills as well as preparation for job searching and interviewing.

Thesis II
Course Number: GCTHE 84002
(Credits: 4, Fall)
Course Director: Sarah Elsea, PhD
Course Description: The MSGC Program in Genetic Counseling requires completion of a research thesis. This course will continue the work begun in Research Methods in Genetic Counseling & Thesis I. Students will gather data related to their IRB approved graduate level research project developed in Thesis I under the supervision of a thesis advisory committee. Students will begin data analysis of their IRB approved graduate thesis project developed. The experience will be structured such that students are expected to meet with their primary thesis advisor at least once a week and the full advisory committee at least once a month for the purposes of ongoing project oversight, implementation, data analysis and interpretation of results, and summarizing results.

Journal Club III
Course Number: GCJOC 61003
(Credit 1, Fall)
Course Director: Tanya Eble, MS, CGC & Lauren Westerfield, MS, CGC

Course Description: This course covers a review of current literature relating to advancements in genetic counseling, including the risk, diagnosis, and management of genetic diseases. Through this course, students will be able to: 1) review published literature and summarize significant findings, 2) analyze and critically evaluate data from the literature, and 3) present relevant data to provide an overview of key findings published in the literature.

Variant Interpretation and Counseling
Course Number: GCVIC 62000 DLECT
(Credits 2, Fall)
Course Director: Linyan Meng, PhD & Patricia Ward, MS
Course Description: Gene curation assists the healthcare provider to assess and classify the role of a sequence variant or copy number variant found in a gene and the potential role of the variant in a disease. In this course, students will learn the process of variant classification in laboratory result interpretation. This course is designed to provide students with the foundation on which to build the skills to utilize databases and other resources to aide in the classification and re-classification of novel gene variants as well as previously described gene variants. Genetic counseling students will be assigned projects utilizing these resources and will learn to critically review laboratory data on exome sequencing, gene panel sequencing, and other genetic testing methodologies and curate these data for report interpretation. Students will shadow Clinical Genomics Scientists to learn how professional society guidelines of variant classifications are used in clinical interpretation. Students will also be introduced to bioinformatics resources and how they can be used to inform genetic testing methodologies and reporting.

Clinical Practicum IV (for site listings, see Clinical Practicum I, 1st Year, Fall)
Course Number: GCCLP 74004 CPRAC
(Credits 4, Fall (August – December))
Course Co-Directors: Tanya Eble, MS, CGC; Salma Nassef, MS, CGC; & Andrea Lewis, MS, CGC
Course Description: Students will rotate through two eight-week blocks each semester. During this semester students will take on full cases including case preparation, counseling the full session, test coordination, and follow up as needed. Through this rotation and with continuation into clinical practicum V, the students will rotate through the three main specialties (prenatal, pediatric, and adult).

2nd Year, SPRING (13 semester credit hours)

Advanced Genetic Counseling II
Course Number: GCAGC 62002
(Credits: 2, Spring)
Course Director: Daniel Riconda, MS, CGC
Course Description: This course focuses on advanced topics within the profession of genetic counseling. It will provide the framework for discussion and understanding of such topics as licensure, billing and reimbursement for services, supervision, and compassion fatigue and burn out, board preparation and genetic counseling outcomes as well as legal and ethical issues within the practice of genetic counseling.

Psychosocial Practicum II
Course Number: GCPSP 62002
(Credits: 2, Spring)
Course Co-Directors: Salma Nassef, MS, CGC; Patti Robbins-Furman, MS, CGC; & Tammy Solomon, MS, CGC
Course Description: This course is designed to introduce students to concepts pertaining to psychosocial aspects of a genetic counseling session. This will be a combined class incorporating both first and second year genetic counseling students. Students will learn through didactic lectures, group discussion, role-plays, interactive sessions, and reflective exercises. Through the exploration of topics such as ethics, cultural competency, difficult patients, and autonomy, students will develop skills specific to clinical practice.

Thesis III
Course Number: GCTHE 84003
(Credits: 4, Spring)
Course Director: Sarah Elsea, PhD
Course Description: The experience will be structured such that students are expected to meet with their primary thesis advisor at least once a week and the full advisory committee at least once a month for the purposes of ongoing project oversight, implementation, data analysis and interpretation of results, and summarizing results. Students will prepare manuscript and/or abstract for submission to a reputable national journal or national conference. In addition, they will orally present their dissertation in an open colloquium and then participate in a closed oral defense after their presentation with their thesis advisory committee.

Journal Club IV
Course Number: GCJOC 61004
(Credit: 1, Spring)
Course Director: Tanya Eble, MS, CGC & Lauren Westerfield, MS, CGC
Course Description: This course covers a review of current literature relating to advancements in genetic counseling, including the risk, diagnosis, and management of genetic diseases. It also includes attendance at genetics case conferences at least twice a month. Through this course,

students will be able to: 1) review published literature and summarize significant findings, 2) analyze and critically evaluate data from the literature, and 3) present relevant data to provide an overview of key findings published in the literature.

Clinical Practicum V (for site listings, see Clinical Practicum I, 1st Year, Fall)
Course Number: GCCLP 74005
(Credits 4, Spring)
Course Co-Directors: Tanya Eble, MS, CGC; Salma Nassef, MS, CGC; & Andrea Lewis, MS, CGC
Course Description: This rotation is a continuation of the Clinical Practicum IV course. Students will rotate through two 8-week blocks in this semester. The first block will be in one of the core specialties (prenatal, pediatric, and adult). During this semester students will take on full cases including case preparation, counseling the full session, test coordination, and follow up as needed. The second block will be reserved for their desired specialty, remediation if needed, and/or a specialty rotation.

Graduation Requirements:

62 Credits (49 didactic and 13 clinical)

Completion of Master's thesis