

First Year, FALL (16 semester credit hours)

Foundations of Genetic Counseling I

Course Number: GCFG 64001 DLECT

(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 DLEOL

(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, an short presentations (~30 minutes per week will be in person).

Embryology

Course number: GCEMB 62003 DLECT

(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 DLECT

(Credits: 2, Fall)

Course Co-Directors: Robert J. McLaughlin, Ph.D., Beth Garland, Ph.D., & Josh Utay, M.Ed., CPO

Course Description: This course will explore the theory and practice of counseling for health behavior change with a focus on application of Motivational Interviewing skills to health-risk behaviors. The stages of behavior change will be introduced using the frameworks of the Transtheoretical Model, social learning theories, and self-determination theory. Elements of the therapeutic alliance and the principles of harm reduction will be introduced along with aligning with the patient through strategic health behavior change counseling. Modeling through role play will be used to develop and refine the student's ability to identify behavioral risks, assess readiness for change, and use effective communication skills to elicit the patient's commitment to change. Observations of self-help and patient support group sessions will be used to further socialize students to the degree to which individuals are committed to change. Students will be prepared to incorporate the identification of risk and assessment of readiness to change into written reports of workups of patients. These experiences should help the student develop an intimate understanding of the process of change and thereby increase empathy for patients attempting to adhere to challenging treatment regimens and improve their own health behaviors.

Health Research Methods

Course Number: HPHRM 62441 DLECT

(Credits 2, Fall)

Course Director: Antone R. Opekun, MS, PA-C

Course Description: Part I of this course will introduce the principles of human research methodology and explore the impact that different types of human research have on clinical practice and the health care system. Students will develop an understanding of the skills necessary to critically review medical literature, design research study, apply medical and epidemiologic methods, prepare protocols, approach data generation, manage data, perform data analysis, conduct subject follow-up, address quality assurance concerns, and adhere to ethical, legal, and regulatory issues involved in human-subject research. Exercises in inductive reasoning skills are required. These skills include article search-and-retrieval, annotated bibliography generation, and manuscript abstractions necessary to perform critical reflections. Sources of information used to guide these processes will include the 2010 CONSORT Statement criteria and the Cochrane Handbook criteria and the texts.

Part II of this course will provide instruction in applied biostatistical principles necessary to plan and execute a clinical or outcomes-related research project with an emphasis on interpreting results stated in the medical literature, organizing alpha-numeric data and completing

fundamental statistical analyses. This aspect of the course will also provide a basis for initiating discussions with statisticians about newly generated findings or engaging in pertinent discussions when larger complex studies are undertaken. Students will understand and develop skills related to descriptive and inferential statistics and develop a proficiency level necessary to complete work on a small research project. These skills include proficiency in research study design, data generation, data management, data analysis, and data display, including graphics. Online exercises that cognitively reinforce critical content and statistical skills are required and may be completed in small groups or individually.

Research Methods in Genetic Counseling

Course Number: GCRGC 61001 DLECT

(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 build on topics covered in Research Methods to 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 DLECT

(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 CPRAC

(Credits 1, Fall)

Course Co-Directors: Tanya Eble, MS, CGC; Salma Nassef, MS, CGC; & Pilar Magoulas, 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; HPA/Pediatrix (Sugarland, College Station, Lufkin, Katy, Kingwood, Willowbrook, West Houston, Pearland)

Pediatric: 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: CHI- College Station; Millennium Oncology- Woodlands; Kingwood; Red Oak; 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
- New York/Lennox Hill

First Year, SPRING (19 semester credit hours)

Foundations of Genetic Counseling II

Course Number: GCFG63002 DLECT

(Credits: 3, Spring)

Course Director: Daniel Riconda, MS, CGC

Course Description: This course is designed 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 DLEOL

(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 (~30 minutes per week will be in person).

Medical Ethics

Course Number: GCETH 62201 DLECT

(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 DLECT

(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 DLECT

(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 DLECT

(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 DLECT

(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 DLECT

(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 DLECT

(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 CPRAC

(Credits 2, Spring)

Course Co-Directors: Tanya Eble, MS, CGC; Salma Nassef, MS, CGC; & Pilar Magoulas, 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 DLELA

(Credits: 1, Spring I)

Course Director: Alicia Braxton, 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 molecular, biochemical, and cytogenetic techniques, including PCR, sequencing, next generation sequencing, CMA, tandem mass spectrometry, organic and amino acid analysis, cell culture, banding, and karyotyping. Additionally, through this course students will understand the basics of the role of a laboratory genetic counselor.

Second Year, FALL (17 semester credit hours)

Clinical Practicum III (for site listings, see Clinical Practicum I, First Year, Fall)

Course Number: GCCLP 74003 CPRAC

(Credits 4, 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 DLECT

(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 DRESR

(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 DLECT

(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: Patricia Ward, MS

Course Description: Gene curation helps the healthcare provider assess and classify the role of a variant found in a gene's sequence and its potential role 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 and other learners taking this course will also be asked to contribute to writing and critically reviewing laboratory reports on exome sequencing, gene panel sequencing, and other genetic testing methodologies. Students will have option of shadowing Clinical Genomics Scientists from the Clinical Genomic Interpretation division at Baylor Genetics to learn how professional society guidelines of variant classifications are used in clinical interpretation. Students will also be introduced to bioinformatics and how they may 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; & Pilar Magoulas, 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 DLECT

(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, boards 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 DLECT

(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 DRESR

(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 DLECT

(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 CPRAC

(Credits 4, Spring)

Course Co-Directors: Tanya Eble, MS, CGC; Salma Nassef, MS, CGC; & Pilar Magoulas, 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:

65 Credits (50 didactic and 15 clinical)

Completion of Master's thesis