

California State University, Stanislaus
Biology: Genetic Counseling (MS)
Graduate Annual Assessment Report 2008-09 AND Assessment Plan 2009-10

As noted in the Academic Program Review procedures, each graduate program is required to provide an assessment of student learning. Assessment reports will be submitted annually and with the seven-year Academic Program Review.

Mission, Goals, Objectives

For items 1-5, please indicate any changes made during AY 2008-09. If no changes were made, please continue on to the assessment report and plan.

1. Mission

The mission of the CSU Stanislaus M.S. Genetic Counseling Program is to provide students with the highest quality of academic, clinical and research training that will prepare them for exemplary careers in genetic counseling. Through a strong interdisciplinary program that balances the scientific, psychosocial, and ethical perspectives that are integral to the profession, graduates of the program are expected to be successful clinicians, inquisitive researchers, committed patient advocates, and visionary leaders who will help shape the future of the profession.

2. There are Six Graduate Learning Goals for the program:

- a. Advanced knowledge, skills, and values appropriate to the discipline.
- b. Ability to be creative, analytical, critical thinkers.
- c. Ability to work as individual researchers/scholars as well as in collaboration with others in contributing to the scholarship of their disciplines, as appropriate.
- d. Relevant knowledge of the global perspectives appropriate to the discipline.
- e. Knowledge of current and new methods and technologies as appropriate to the discipline.
- f. Advanced oral and written communication skills, complemented by the ability to access and analyze information from a myriad of databases and technological sources.

3. Program Goals

By the completion of the degree program, the students should have achieved the following program goals:

- a. Knowledge based mastery of human genetic diseases
 - Ability to decipher different modes of single gene Inheritance, with a clear understanding of their exceptions and confounding factors
 - Understanding of the multifactorial etiology of common diseases (e.g. cardiovascular diseases, diabetes, hypertension, etc)
 - Clinical manifestations associated with a wide spectrum of genetic disorders
 - How to take a comprehensive family history and construct family pedigrees
 - Be able to provide recurrence risk calculations using Bayesian analysis

- Understand population genetics concepts and the application of Hardy-Weinberg calculations to determine gene frequencies
 - Understand the genetic basis of different types of cancer
 - Understand the molecular, biochemical, and cytogenetic basis of diseases
 - Be knowledgeable about the different types of diagnostic tests and screening methods available for genetic diseases
 - Be knowledgeable about prevention strategies and treatments available for genetic diseases
- b. Understanding of individual and group psychosocial theories and counseling principles
- Interviewing skills
 - Decision making dynamics and guidance techniques
 - Grief and bereavement counseling
 - Crisis intervention techniques
- c. Critical Thinking Skills
- Differential diagnoses
 - Laboratory interpretations
 - Critical analysis of journal articles
- d. Awareness of ethical, legal, and social issues in genetic counseling
- Code of ethics developed by the National Society of Genetic Counselors
 - Cultural differences that impact decision making, lifestyle choices, interpretation of information
 - Societal and public policy issues
 - Legal issues (e.g. IRB policies, HIPAA regulations, Genetic Information nondiscrimination Act, Americans with Disabilities Act)
 - Ethical issues and considerations when dealing with complex patient cases, new technologies, new legislation that effects genetic services, etc.
- e. Professional Skills
- Documentation, coordination, and management of cases
 - Utilization of databases and genetics literature
 - Comprehensive awareness of referral services
 - Research methodology
 - Works well as part of a team as well as independently
- f. Effective communication skills
- Strong interpersonal skills
 - Proficiency in oral and written communication
 - Experience in providing educational presentations to a wide range of audiences

4. **Program Student Learning Objectives**

Students in the program will learn:

- The inheritance patterns and clinical symptoms associated with a variety of common, complex, and rare medical genetic conditions

- The molecular, biochemical, immunological, and cytogenic basis of genetic disorders, and the application of laboratory technologies to diagnose genetic conditions
- To analyze and interpret laboratory results
- Research methods and professional written and oral skills
- The ethical, legal, psychosocial, and cultural issues associated with patient care and health sciences information delivery
- Counseling techniques and theories for effective communication
- Business issues related to the genetic counseling profession
- How to integrate the above information in real world situations through internships

5. **Curriculum Map** (Alignment of Program Core Courses, Graduate Learning Goals, Program Student Learning Objectives, Assessment Methods, Instructional Emphasis, and Primary Assessment Methods) – see attached

❖ **What measures were used this year to determine that graduates have achieved the stated program learning objectives?**

A variety of measures were implemented to assess the attainment of program goals. They included:

a) Direct assessment measures:

- Exams, presentations, problem sets, writing assignments and in class activities (e.g. case studies, role play) were employed by course instructors to assess each student's acquisition and application of concepts covered in the course.

b) Indirect assessment measures:

- Assessment of the students' performances were provided by the clinical internship supervisors both midway and at the end of the clinical internship rotation addressing the depth of pedagogical knowledge, quality of critical thinking, and professional skills demonstrated by the students during their rotations.
- During the spring semester, the instructors of all the courses taught during the fall and spring semesters were convened in a focus group meeting to discuss their overall assessment of the students' progress in the areas of academic knowledge, application of knowledge, communication skills, perceptiveness of and handling of psychosocial issues, classroom participation, personal growth and maturity, and areas of academic weakness
- Feedback provided by attendees of presentations given by students on the topic of medical genetics and genetic counseling
- Students' participation in journal club discussions

❖ **How did the program interpret the evidence found from each of the measures listed above? What was the process for interpreting the evidence?**

For the direct measures, each of the course instructors were able to evaluate student performance based on the outcomes of their exams, class projects, written assignments, oral presentations, and class discussions. The final grades assigned to each student reflected the instructor's assessment of how well each student performed on the learning objectives of the course and the program.

For each of the indirect measures, the following occurred:

a) clinical supervisors assessments –

The information provided by the supervisors is very thorough and includes assessments of a wide range of academic knowledge and skills acquisition. These reports are provided midway and at the end of the rotation. The midway reports are very helpful because they provide feedback for the students regarding areas of strengths and weaknesses in their performance and allow the students and supervisors to make adjustments as needed. These reports are extremely valuable because they provide an assessment of how well the students perform in a real world setting, and allows the program administrators to better gauge the strengths and weaknesses of the overall program in the context of the working professional setting. Based on the feedback, we have decided to modify the curricular content of some of the courses.

b) Focus group meeting-

Based on the feedback provided by the instructors, we have decided that certain areas of the curriculum need to be strengthened (e.g. Bayes analysis in recurrence risk calculations, and other quantitative genetic concepts) due to an observed weakness in these areas demonstrated by students in an advanced level course. Consequently, adjustments to the curriculum are being made, which include modification and expansion of content in specific courses. These changes are currently being made and will be reviewed by the appropriate committees on campus.

c) Feedback on student presentations-

Several students provided presentations to professional and lay groups over the summer. Written and verbal feedback was solicited. Although written feedback was limited, the verbal feedback was extremely positive for all the students who provided the presentations. The one student who provided a presentation to a professional group of healthcare providers at Oakland Kaiser received extremely high reviews for the clarity of her presentation, the depth of knowledge she demonstrated about the topic, and the relevancy of the information to their profession.

d) Journal Club –

Both the first and second year students are required to jointly enroll in the Graduate Genetics Seminar, which is a mix of journal article discussions (journal club) and outside speakers. What we have observed is that the second year students are more engaged in the journal article discussions because they have acquired more knowledge and experience related to the profession that they can bring to the discussions. There are both scientific and psychosocial issues raised in the discussions, and student participation is closely monitored. If a particular student is not contributing to the discussions, a private meeting is scheduled with the student to determine whether the lack of engagement has an academic or personal basis, and ameliorative action is taken as needed and appropriate.

❖ **Describe successful outcomes and any changes the program faculty have made or plan to make for improving student learning, curriculum, instruction delivery, and other elements of program effectiveness.**

We have had several successful outcomes from the program, even though the program is only in its second year. These include:

- Each of the second year students are progressing very well on their research projects and all indications are that they will complete their projects by the end of the second year. One of

the students will be presenting her research work at the National Society of Genetic Counselors meeting this fall, and several other students will be presenting their work at more local meeting venues. Several of the second year students have initiated research work that can be continued into a second phase of research by the new first year students. This provides an opportunity for more comprehensive data collection for the initial research project, and allows the second year students to experience the valuable role as a mentor for the first year students.

- As mentioned above, educational presentations by several of our students have been received with great reviews. These presentations have been made for both professional and lay audiences.
- After the first focus group meeting of instructors to discuss curricular issues and provide feedback about the students, it was decided that an annual education retreat will be held for all the instructional faculty to provide an opportunity to exchange teaching tips, new classroom activities, new educational resources, etc. This exchange of teaching tips was a serendipitous outcome of the first meeting, which proved to be a very positive experience for all the instructors.

There will be changes to the curriculum as a response to feedback and reviews that have taken place thus far. These changes include:

- We will be altering some of the course content for a few of courses (e.g. including more quantitative genetic concepts and application skills), and we will be expanding the course units for some of the course to include more course content
- For several of the sessions where outside speakers provided a presentation for the Advanced Medical Genetics course, the instructor debriefed the students on the salient points from the presentation and presented a case study to link the presentation to a practical application. This was very popular with the students and thus there will be more of these “debriefing” sessions scheduled following presentations by outside speakers.

❖ **If changes for improving the program or student learning were recommended, what resources will be needed to implement those changes effectively? What other challenges, if any, will impact the program’s ability to effectively implement those changes?**

Based on feedback from the focus group with the instructional faculty last spring, we will be adding one extra semester of the Advanced Medical Genetics course and increasing the number of units for a couple of courses. These changes will NOT result in an increase in pay to the instructors because the payscale has been reduced for the instructors for this year compared to last year. Consequently, even with the increase in the number of units for the program curriculum, the total pay for course instruction will actually be the same or reduced.

Assessment Plan for AY 2009-10

❖ Describe the program assessment plan including its design and implementation.

While we will strive to monitor most of the student learning objectives, we will focus our assessment on 3 key objectives listed above:

- Advanced knowledge, skills, and values appropriate to the discipline
- Ability to work as individual researchers/scholars as well as in collaboration with others in contributing to the scholarship of their disciplines, as appropriate
- Advanced oral and written communication skills, complemented by the ability to access and analyze information from a myriad of databases and technological sources.

The rationale for focusing on these learning objectives is based on the expectation that all of our second year students will be conducting, completing, and communicating (oral and written) their research work in the current academic year. They will be taking a key course called Research Methods and Professional Skills, and will ultimately present their research results to their colleagues and the oral defense committee. Some of them will also be presenting their research at national and/or regional professional meetings. Therefore, it would be valuable from a programmatic perspective to get assessment data on how well the students are meeting the learning objectives listed above.

Similar types of direct and indirect measures of assessment will be employed this year as used last year. The direct measurements will include a combination of exams, written and oral presentations, problem sets, and classroom activities. This will apply to courses taught in both the fall and spring semesters and for both the first and second year students. The indirect measures will include individual interviews in the fall and spring with primary research mentors working with students on their research projects; assessment reports provided by clinical internship supervisors; focus group meeting in the spring with instructional faculty and research mentors; student participation in journal club discussions; and feedback from other students and faculty attending student research presentations in the spring semester. At the end of the academic year, all the assessment data will be reviewed by the core administrative personnel, which includes the Program Director, Associate Director, Clinical Supervisor, and Co-Medical Directors. Additional individuals will be invited to the meeting as needed.