

**Unit Plan for Assessing and Improving
Student Learning in Degree Programs**

Unit: Division of Nutritional Sciences

Chaim M. Klossman

Unit Head approval: _____ **Date:** August 11, 2008

SECTION 1: PAST ASSESSMENT RESULTS

Brief description of changes or improvements made in your unit as the result of assessment results since 2000.

In 1999, the Division of Nutritional Sciences Interdepartmental Graduate Training Program established 8 key outcomes for our graduate students (see Section 2b). For each outcome, a set of metrics by which to measure whether the student had achieved that outcome was defined (see Section 2c).

One key improvement in the program since 2000, is that we have developed a standardized Qualifying Examination for ALL doctoral students in 2004. In the past, it was used for students who entered into the program with a bachelor's degree and wished to by-pass the M.S. degree and go directly for the Ph.D. Each Qualifying Exam Committee was established by the student and his or her advisor and approved by the Division Director. However, there was consistency in the examination of nutrition knowledge. Therefore, we established a standing Qualifying Examination Committee comprised of 3 faculty members and 1 alternate. Each member serves on the Qualifying Examination Committee for 4 years, as alternate in the first year and chair of the committee in the final year. The Qualifying Examination Committee administers all of the Qualifying Exams for doctoral students in the Division, thus our aim is to provide each student with as consistent of an oral examination as possible. Exams are scheduled at the beginning of each semester (August and January) and are 2 hours in duration. All doctoral students are required to successfully complete the exam before matriculating into the PhD program. The exam questions are focused entirely on nutrition knowledge and are asked in a way that requires the graduate student to integrate their knowledge of nutrition from cellular metabolism to clinical disease or community interventions. After the Qualifying Examination, the student is provided with written feedback on their performance any strengths and weaknesses that were apparent to the Committee. A copy is sent to the student, their research advisor and the Division Director. The Qualifying Examination Committee may suggest that the student take an additional course, if appropriate. If a student does not pass on the first attempt, they can retake the exam the following semester. Approximately 20% of students have not passed the exam on their first attempt. One student decided to complete the M.S. degree, but all others retook the exam and passed it.

We have already garnered several benefits by establishing the standing Qualifying Examination Committee:

1. This committee provides feedback to the Director after each semester's examinations on any areas of strengths and weaknesses that were observed among most of all of the students. We have used that outcome assessment for program improvement by developing several new courses.
2. We are confident that students leaving the program have a solid base of nutrition knowledge. Up to 60% of our students do not have undergraduate degrees in nutrition or dietetics, so the Qualifying Exam provides a level playing field.

3. The students have formed a “Noontime Nutrition” group to help each other prepare for the Qualifying Examination. This has helped to build camaraderie among the students and the more experienced students benefit by mentoring the younger students.
4. By focusing on nutrition knowledge in the Qualifying Exam, the Preliminary Exam now focuses entirely on the student’s dissertation research proposal, rather than using the Prelim Exam to review nutrition knowledge and evaluate the student’s potential for independent research.

SECTION 2: REVISED ASSESSMENT PLAN

(a) PROCESS: Brief description of the process followed to develop or revise this assessment plan.

The DNS Executive Committee, consisting of 9 elected faculty members and 1 elected graduate student, evaluated the 8 student outcomes established in 1999. The committee felt that these outcomes were still pertinent to training the next generation of leaders in our discipline. The plan was then shared with the Nutritional Sciences’ faculty and students and they agreed that the outcomes were still timely and pertinent. One additional outcome was suggested – *Depth of Knowledge in an Affiliated Field*, which is consistent with the Disciplinary Concentrations being developed in the Division of Nutritional Sciences.

(b) STUDENT OUTCOMES: List Unit’s student learning outcomes (knowledge, skills, and attitudes).

The nine key outcomes desired of Nutritional Sciences graduate students are summarized below:

Established in 1999:

Outcome 1. Breadth of knowledge in fundamental principles of nutritional sciences

Outcome 2. Depth of knowledge in the specific area of research focus

Outcome 3. Ability to critically analyze, interpret and extrapolate data from research and the scientific literature

Outcome 4. Written communication skills

Outcome 5. Oral communication skills

Outcome 6. Methodological and technical expertise

Outcome 7. Teaching experience

Outcome 8. Knowledge of professional ethics

Added in 2008:

Outcome 9. Depth of knowledge in an affiliated field

These outcomes are assessed using metrics on the following page (Table 1) and well as in exit interviews with the Director of Nutritional Sciences.

(c) MEASURES AND METHODS USED TO MEASURE OUTCOMES:

Table 1. Nine desired outcomes to be achieved by Nutritional Sciences Graduate Students and suggested Quantitative and Qualitative Measures

Measures of Accomplishment of Desired Outcomes	Quantitative Measures	Qualitative or Subjective Measures
Breadth of knowledge in fundamental principles of nutritional sciences	Completion of course work and degree requirements	Qualifying and preliminary examinations
Depth of knowledge in the specific area of research focus	Completion of course work and degree requirements	Qualifying, preliminary examinations, dissertation defense
Ability to critically analyze, interpret and extrapolate data from research and the scientific literature	Completion of course work	Preliminary examination, dissertation defense
Written communication skills	Completion of course work Completion of dissertation Publication of dissertation research Grant proposals	Preliminary examination proposal, dissertation defense
Oral communication skills	<i>Presentations at scientific meetings</i> <i>Presentations in departmental seminars</i>	Qualifying and preliminary examinations, dissertation defense <i>Presentations at scientific meetings</i> <i>Presentations in departmental seminars</i>
Methodological and technical expertise	Publication of dissertation research in peer reviewed journals	Preliminary examination, dissertation defense Presentations at scientific meetings Presentations in departmental seminars
Teaching experience	Teaching Associate or Discussion Leader experience Enrollment in “Supervised Teaching” course	Peer and faculty evaluation of teaching effectiveness ICES evaluations
Knowledge of professional ethics	Completion of NUTR 550 (Grantsmanship and Ethics) Attendance at ethics seminars in NUTR 500	Ethical conduct of research Ethical presentation of results in presentations and publications
Depth of knowledge in an affiliated field,	Completion of course requirements for disciplinary concentration	Presentations in NUTR 590 (Disciplinary Concentration Seminar)

Italicized items have both objective and subjective components. Objective: Did they present at meetings (yes or no)?; Subjective: How well did they perform?

SECTION 3 : PLANS FOR USING RESULTS

(a) PLANS: Brief description of plans to use assessment results for program improvement.

1. We will continue to use feedback from the Qualifying Examination Committee, graduates in Exit Interviews and Alumni Surveys (on our website) to improve our course offerings and experiential learning opportunities (e.g. industry or dietetic internships, research at other institutions, etc).
2. We have a good mechanism in place for feedback on student's performance on Qualifying Examinations. We will ask the Chair of a student's preliminary committee to provide feedback to the student on strengths and areas of potential improvement
3. A number of current students and alumni felt that cross-training in another discipline would increase their marketability and preparation for undertaking interdisciplinary research in the future. A major initiative in the Division is to develop Disciplinary Concentrations in order to prepare our students to for careers in interdisciplinary fields. Four concentrations are being developed: Diet and Cancer; Nutritional Immunobiology; Gastrointestinal Physiology & Pre and Probiotics; and Molecular Regulation of Metabolism. We have developed a new seminar course (NUTR 590 - Disciplinary Concentration Seminar) to bring faculty and students together to discuss research. We are in the process of establishing a course of study underlying each of the concentrations and will request approval for formal concentrations from the Graduate College.

(b) TIMELINE FOR IMPLEMENTATION:

1. Feedback from the Qualifying Exam Committee, Exit Interviews and Alumni Surveys will be on-going.
2. We will implement outcomes assessment review of Preliminary Examinations in Fall 2008.
3. We will implement the approved Disciplinary Concentrations by Fall 2009.