Chemistry Graduate Assessment Report for 2009

I. NMHU's Mission

New Mexico Highlands is a comprehensive state institution offering programs in liberal arts, sciences, and professional disciplines. The university is committed to excellence in teaching, discovering, preserving and applying knowledge and is responsive to new opportunities for teaching, learning, research and public service created by a changing environment.

Acknowledging its commitment to the individual student, New Mexico Highlands University provides personal attention to undergraduates and graduates. Dedicated faculty and staff readily interact with students, supporting both academic and extracurricular activities. The university brings together students from distinctive cultural, socioeconomic, linguistic, geographic, religious, and educational backgrounds. A sensitive admissions policy offers every student educational opportunities, and challenging academic programs create and promote an environment in which all students are encouraged to reach their full potential. The university recognizes its special obligation to undergraduate education and to the preparation of undergraduates for advanced degrees or challenging professional careers.

New Mexico Highlands University is committed to programs that focus on its multiethnic student body, especially the rich heritage of Hispanic and Native American cultures that is distinctive of the State of New Mexico. The university clearly perceives that its success depends upon an appreciation of the region's cultural and linguistic identities. By reinforcing cultural identity and encouraging the use of these assets, the university seeks to empower students and the region's ethnic populations to achieve full involvement in the activities of society. The university recognizes the increasing importance of the Spanish language in the global community and takes advantage of its environment, location and student population to promote the development of interdisciplinary programs involving the Hispanic world. The university encourages international education, the international exchange of students and scholars, and access to global communications.

New Mexico Highlands University's larger obligation is to a society in which all groups participate on an equitable and mutually rewarding basis. The university celebrates diversity in its student and faculty community and promotes an environment in which personal respect, tolerances, and understanding are valued by all. The university aspires to develop broadly literate citizens and leaders, educated in analytical and critical thought and in the appreciation of the arts and sciences. In essence, through educational excellence and a dedication to society's needs, the university is committed to the cultivation and enrichment of the human mind and spirit.

II. Program Goals

The goal of the chemistry Master of Science degree program is to adequately prepare the graduate to enter the work force at the level of a M.S. graduate. It also designed to prepare students for the rigors of a more advanced Ph.D. program of study. Course preparation and advisement are available for students who chose to enter a profession school to study for a career in an area such as medicine, veterinary science, dentistry, pharmacy, etc.

III. Student Outcomes

Academic Skills or Traits Expected of NMHU Graduates:

1) Mastery of content knowledge and skills
2) Effective communication skills
3) Critical and reflective thinking skills
4) Effective use of technology

Outcome #1 (Trait 1): NMHU Master of Science Chemistry graduates should have the command of a basic body of chemical knowledge that is competitive with any M.S.-level chemistry graduate from any quality U.S. University or institution.

Outcome #2 **(Trait 2 & 3)**: NMHU Master of Science Chemistry graduates should be able to analyze and solve a chemical problem and suggest appropriate solutions to the problem that apply responsible and safe procedures. They should also have the ability and confidence to use appropriate chemistry-related instrumentation in the solution of chemical problems and be able to communicates by oral, written and electronic modes.

Outcome #3: NMHU Master of Science Chemistry graduates should have the maturity and the work ethic to succeed in subsequent Ph.D.-level work, as a professional chemist, or in a related technical discipline.

IV. Means of Assessment

Outcome #1: NMHU Master of Science Chemistry graduates should have the command of a basic body of chemical knowledge that is competitive with any M.S.-level chemistry graduate from any quality U.S. University or institution.

Means of Assessment of Outcome #1: Thesis, oral exams, or similar chemistry discipline measurement devices will be given to determine how well the NMHU chemistry graduate student has assimilated the total body of chemical knowledge offered in the curriculum. The results of the examinations will provide the student a vehicle for a self-assessment and to help in formulating plans for further graduate study. The results of the examinations will assist the faculty in identifying areas of weakness in the curriculum. Courses may be modified, developed or dropped in response to the test results.

Criterion for Achievement of Outcome #l, Means of Assessment• Student outcomes are considered met if students obtain passing scores for thesis defense, oral exams, or similar discipline measurement devices.

Outcome #2: NMHU Master of Science Chemistry graduates should be able to analyze and solve a chemical problem and suggest appropriate solutions to the problem that apply responsible and safe procedures. They should also have the ability and confidence to use appropriate chemistry-related instrumentation in the solution of chemical problems and be able to communicates by oral, written and electronic modes.

First Means of Assessment of Outcome #2: Involvement of students in research projects allows the faculty to ascertain student achievement in the areas of work ethics, instrumentation usage, safety, problem solving, project completion abilities and the utilization of basic chemical knowledge. The chemistry Master of Science program requires the completion of a Master of Science thesis.

Criterion for Achievement of Outcome #2, First Means of Assessment: Student outcomes are considered met if students satisfactorily complete a thesis research project and successfully defend the thesis. See data for outcome 1.

Second Means of Assessment of Outcome #2: Graduate students engaged in thesis research will be required to present their research results (in an "ongoing" fashion) at Departmental Research Seminars and at Professional meetings.

Criterion for Achievement of Outcome #2, Second Means of Assessment. Student outcomes are considered met if students satisfactorily present research results at Departmental Research Seminars and at Professional meetings.

Of 25 graduate students who took CHEM 55 Research Seminar since fall 2005, the average student took 3 credits with an average GPA for the course of 3.3. All students taking the class for a grade earned satisfactory marks. Many students also presented work at professional meetings as well, but we have not kept adequate records for a statistical

Outcome #3: NMHU Master of Science Chemistry graduates should have the maturity and the work ethic to succeed in subsequent Ph.D.-level work, as a professional chemist, or in a related technical discipline.

Means of Assessment of Outcome #3: The chemistry faculty considers this to be a important method of evaluation of the effectiveness of the program. We recognize the need for a mechanism to gauge student progress following graduation from the program. Unfortunately, development of such a mechanism (e.g. distribution and collection of an evaluation of program effectiveness from program graduates) has been problematic, and has not been implemented. Therefore, we are eliminating this specific means of outcomes assessment in favor of an exit evaluation which students will be asked to complete upon graduation from the program. We however do keep track of where graduates of the program go upon completion of the program.

Criterion for Achievement of Outcome #3, Means of Assessment: Student outcomes are considered met if graduates of the program go on to pursue advanced Ph.D. studies, or obtain employment in a chemistry-related or similar field. Of 9 recent graduates, only 1 in not employed in chemistry.

Graduate Students	**Grad date**	**Status**	**Chemical Employment (5-09)**
Boris Averkieu	7/2005	In PhD program Utah St. U.	Yes
Tiffany Kinnibrugh	5/2006	In PhD program TX AM	Yes
Ekaterina Badaeva	5/2006	In PhD program U. of Washington	Yes
Illya Kosilkin	5/2006	In PhD program U. of Washington	Yes
Adelphe Mfuh	5/2007	In PhD program UT-San Antonio	Yes
David Glass	12/2007	Working as researcher and Chemical Safety Officer at NMHU	Yes
Ernest Asani	12/2007	Chemist with a food company in Idaho	Yes
Jennifer Li	5/2008	Living in Las Vegas	No
Geetha Kicchiahgari	Sum/2008	INVAGEN Pharmaceuticals in New York as analyst	Yes