NEW MEXICO TECH
SCIENCE • ENGINEERING • RESEARCH UNIVERSITY

New Mexico Tech's Approach to Assessment of Student Learning for the General Education Core Curriculum

Submitted to the New Mexico Higher
Education Department

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INTRODUCTION

This document details New Mexico Tech's plan for assessment of the general education program. Following the work of a state-wide task force (see https://provost.nmsu.edu/state-wide-gen-ed/), the general education model for public universities in New Mexico has been revised to facilitate transfer of general education courses and to focus on essential skills graduates will need in order to succeed in their post-graduation endeavors (Table 1). Details can be found on the New Mexico Higher Education Department (HED) website (https://hed.state.nm.us/resources-for-schools/public_schools/general-education). These changes will be instituted starting in Fall 2019. A critical component of this effort is assessment of student learning related to these essential skills.

TABLE 1. ALIGNMENT OF ESSENTIAL SKILLS WITH GENERAL EDUCATION CONTENT AREAS

CONTENT AREA	ESSENTIAL SKILLS ASSOCIATED WITH CONTENT AREA
Communication	Communication Critical Thinking Information and Digital Literacy
Mathematics	Communication Critical Thinking Quantitative Reasoning
Science	Critical Thinking Personal and Social Responsibility Quantitative Reasoning
Social and Behavioral Science	Communication Critical Thinking Personal and Social Responsibility
Humanities	Critical Thinking Information and Digital Literacy Personal and Social Responsibility
Creative and Fine Arts	Communication Critical Thinking Personal and Social Responsibility

From: NM HED website:
https://hed.state.nm.us/resources-for-schools/public_schools/general-education.

New Mexico Tech views its general education core curriculum requirements as the foundation for a broad and meaningful educational experience for all its undergraduates. The New Mexico Tech general education core curriculum requirements prepare students to communicate and reason well, evaluate and apply information, understand human societies and cultures, deepen their sense of values and ethics, and enrich their personal lives. Additionally, the general education core curriculum requirements equip students with the analytical, language, science, and mathematics skills necessary for the specific degree requirements of their majors. The courses and their sequence in the general education core curriculum requirements are designed specifically to achieve these objectives and to prepare students for success in subsequent courses.

Due to the STEM focus of New Mexico Tech, we also have Institute requirements, which specify required courses that must be completed prior to graduation (i.e., specific calculus, chemistry, physics, and English classes). These courses can be used to satisfy general education requirements. For example, at New Mexico Tech it is advisable for students to use Math 131(Calculus) to satisfy the general education mathematics requirement. Our general education assessment process assumes that students are following this approach. Students transferring to New Mexico Tech from another New Mexico public institution who have used other courses to satisfy their general education requirements will receive general education credit for these courses, though they will still need to satisfy the Institute requirements.

The details of New Mexico Tech's general education process are articulated on the NMT General Education Assessment website (https://www.nmt.edu/academicaffairs/assessment/gened.php).

OVERVIEW OF ASSESSMENT OF STUDENT LEARNING AT NEW MEXICO TECH

At New Mexico Tech, we perform a variety of assessment types, including course assessment, program assessment, co-curricular assessment, general education assessment, and Institute-wide assessment. Assessment activities are coordinated by the Associate Vice President of Academic Affairs and an Assessment Task Force that consists of faculty, staff and administrators (Table 2). The current workflow for NMT assessment activities, including the central role of the Task Force, is summarized in Figure 1.

The schedule of assessment review is as follows:
- October 1: Assessment reports due to Office of Academic Affairs.
- December 1: Assessment reports returned to departments with comments. Revisions may be requested.
- March 1: Final (in some cases revised) reports included in Department Activity Reports (DARs).

The review process is as follows: (1) Reports are initially reviewed by the Associate Vice President for Academic Affairs (AVPAA) and one or more additional reviewers using a Google Forms rubric. Results are compiled in an associated spreadsheet. (2) The Task Force meets and

conducts a "panel discussion" in which reviewers detail the strengths and weaknesses of the reports and appropriate feedback. (3) The AVPAA drafts summary comments and scores. (4) Summary comments and scores are reviewed by the Task Force.

TABLE 2. MEMBERSHIP OF NMT ASSESSMENT TASK FORCE

Name	Title	Role
Dr. Lynda Ballou	Lecturer Mathematics	Member
Dr. Daniel Cadol	Assoc. Prof. Hydrology	Member
Dr. Jamie Kimberley	Assoc. Prof. Mechanical Engineering	Member
Ms. Lisa Majkowski	Assoc. Director Advancement	Member
Mr. David Medcalf	Data Analyst Inst. Research	Member Co-Chair
Dr. Peter Mozley	Assoc. VP Academic Affairs	
Dr. Aly El Osery	Dean of Graduate Studies	Co-Chair
Dr. Jesse Priest	Assist. Prof. CLASS	Member
Dr. Donghyeon Ryu	Assist. Prof. Mechanical Engineering	Member
Dr. Steve Simpson	Chair, CLASS Department	Member
Mr. Mitchell Tappen	Director Residential Life	Member
Dr. Kevin Wedeward	Dean of Engineering	Member
Dr. David Westpfahl	Prof. Physics	Member
Dr. Andrei Zagrai	Chair, Mechanical	Member

Assessment results and review comments are shared with the campus community in an annual report, which is produced by the Associate Vice President of Academic Affairs with the assistance of the Assessment Task Force, and posted to a Google Drive folder that is accessible to all New Mexico Tech faculty and staff.

PLAN FOR ASSESSMENT OF GENERAL EDUCATION COURSES AT NEW MEXICO TECH

Following a series of meetings with representatives of departments contributing to the general education core (i.e., Communications, Liberal Arts and Social Sciences; Business and Technology Management; Chemistry; Mathematics; Physics; Psychology and Education) New Mexico Tech has formulated a new plan for assessing the general education program. This plan assumes that students are using courses required by the Institute to satisfy their general degree requirements (see discussion in Introduction).
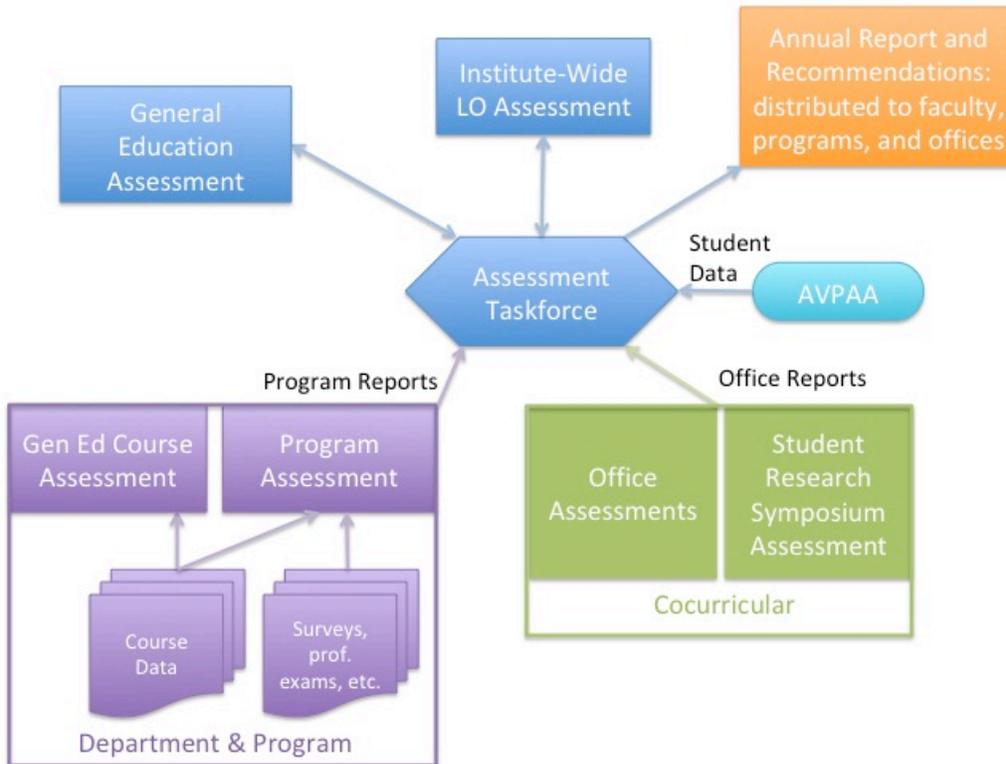
Figure 1. Organization and workflow of current assessment activities at New Mexico Tech. The Assessment Task Force coordinates campus-wide assessment and produces an annual report. The Assessment Task Force and AVPAA will analyze the assessment findings from the departments contributing to the general education curriculum and include the findings, and their own analysis, in the annual report.

Methodology

Individual academic departments will perform an assessment of their courses that contribute to the general education program. These separate assessments will focus on the essential skills corresponding to their content areas (see Table 1). In doing so, the programs will perform a separate assessment of learning outcomes that map to the component skills for each of the relevant essential skills as defined by the New Mexico Higher Education Department (Tables 3 - 7).

Each program will submit a separate report to the NMT Office of Academic Affairs following the schedule described above. As part of their reports they will indicate the percentages of students in the following standardized categories for each of the component skills: *high skill level*, *intermediate skill level*, *low skill level*.

TABLE 3. COMPONENT SKILLS FOR THE ESSENTIAL SKILL OF COMMUNICATION (PROGRAMS WILL ASSESS ALL COMPONENT SKILLS)

Genre and Medium Awareness, Application, and Versatility	Identify and communicate in various genres and mediums (oral, written, and digital) using strategies appropriate for the rhetorical situations (i.e., attending to audience, purpose, and context).
Strategies for Understanding and Evaluating Messages	Apply strategies such as reading for main points; seeking key arguments, counterarguments, rebuttals; locating supportive documentation for arguments; reading with a specific stakeholder lens; applying a theoretical lens (e.g. cultural, political, economic) to understand and evaluate messages in terms of the rhetorical situation (audience, purpose, and context).
Evaluation and Production of Arguments	Evaluate the authority of sources in their own arguments and those of others; distinguish among supported claims, unsupported claims, facts, inferences, and opinions. In arguments, integrate support for their own claims with information from sources that are used and cited ethically and appropriately (using a major citation system such as MLA and APA).

From: NM HED website (https://hed.state.nm.us/resources-for-schools/public_schools/general-education).

TABLE 4. COMPONENT SKILLS FOR THE ESSENTIAL SKILL OF QUANTITATIVE REASONING (PROGRAMS WILL ASSESS ALL COMPONENT SKILLS)

Communication/Representation of Quantitative Information	Express quantitative information symbolically, graphically, and in written or oral language.
Analysis of Quantitative Arguments	Interpret, analyze and critique information or a line of reasoning presented by others.
Application of Quantitative Models	Apply appropriate quantitative models to real world or other contextual problems.

From: NM HED website (https://hed.state.nm.us/resources-for-schools/public_schools/general-education).

TABLE 5. COMPONENT SKILLS FOR THE ESSENTIAL SKILL OF CRITICAL THINKING (PROGRAMS WILL ASSESS ALL COMPONENT SKILLS)

Problem Setting	Delineate a problem or question. Students state problem/question appropriate to the context.
Evidence Acquisition	Identify and gather the information/data necessary to address the problem or question.
Evidence Evaluation	Evaluate evidence/data for credibility (e.g. bias, reliability, and validity), probable truth, and relevance to a situation.
Reasoning/Conclusion	Develop conclusions, solutions, and outcomes that reflect an informed, well-reasoned evaluation.

From: NM HED website (https://hed.state.nm.us/resources-for-schools/public_schools/general-education).

TABLE 6. COMPONENT SKILLS FOR THE ESSENTIAL SKILL OF PERSONAL AND SOCIAL RESPONSIBILITY (PROGRAMS WILL ASSESS 2 OF THE 5 COMPONENT SKILLS)

Intercultural reasoning and intercultural competence
Sustainability and the natural and human worlds
Ethical Reasoning
Collaboration skills, teamwork and value systems
Civic discourse, civic knowledge and engagement – local and global

From: NM HED website (https://hed.state.nm.us/resources-for-schools/public_schools/general-education).

TABLE 7. COMPONENT SKILLS FOR THE ESSENTIAL SKILL OF INFORMATION AND DIGITAL LITERACY (PROGRAMS WILL ASSESS 3 OF THE 4 COMPONENT SKILLS)

Authority and Value of Information	Recognize the interdependent nature of the authority and value of information and use this knowledge ethically when selecting, using, and creating information.
Digital Literacy	Understand, communicate, compute, create, and design in digital environments.
Information Structures	Select, use, produce, organize, and share information employing appropriate information formats, collections, systems, and applications.
Research as Inquiry	Engage in an iterative process of inquiry that defines a problem or poses a question and through research generates a reasonable solution or answer.

From: NM HED website (https://hed.state.nm.us/resources-for-schools/public_schools/general-education).

In addition to the program-level analysis of the assessment results, the NMT Assessment Task Force will analyze data from all of the programs. Standardizing the skill-level reporting as described above will facilitate compilation, analysis, and actions based on the campus-wide data set.

Reporting

The results of the program level assessment and the campus-wide assessment of the general education program will be included in the annual NMT Assessment of Student Learning report, which is shared with all faculty and staff via email and posted on the NMT Assessment of Student Learning website (https://www.nmt.edu/academicaffairs/assessment/index.php).