CHAPTER 12. NJIT GENERAL EDUCATION

STANDARD ADDRESSED: This chapter addresses Standard 12 of the Characteristics of Excellence in Higher Education: General Education.

EXECUTIVE SUMMARY: In order to produce graduates who have the knowledge, skills and motivation necessary to advance the state-of-the-art knowledge in their respective fields, all students participate in coursework fulfilling the General University Requirements (GUR). The GUR requirements are intended to provide educational experiences harmoniously attuned to the mission of NJIT. Completion of the GUR is a necessary step in the fulfillment of the implicit intellectual and social contract that NJIT has with its students and its local, national and global shareholders. A process of collaborative review is used to update, monitor, and modernize the GUR.

INTRODUCTION: Adhering to the institutional assessment framework defined in the Characteristics of Excellence in Higher Education, NJIT’s curricula are designed so that students demonstrate college-level proficiency in general education and essential skills, including competency in oral and written communication, scientific and quantitative reasoning, critical analysis, and technological competency.

NJIT is committed to general education. The GUR is designed to be a cohesive force independent of student major. As analyzed in Chapters 11 and 14, the NJIT Core Values (education as a life-long activity, dedication to service, acceptance of leadership, promotion of technology, encouragement of entrepreneurship, adherence to civility, celebration of diversity) and NJIT Institutional Learning Goals (research-based inquiry, ethical conduct, economic opportunity, collaboration, and engagement) constitute the unifying framework for the GUR. Uniformly measured in the GUR are the following: writing, reading, and critical thinking; qualitative reasoning; and information literacy.

THE GENERAL UNIVERSITY REQUIREMENT AND THE NJIT MISSION: Historically, courses serving the GUR, as shown in Table 12.0, have been—and are—in a process of continuous improvement to strengthen the NJIT mission. For example, since the last decennial review there has been an increase in computing science and an expansion of options available to students. This expansion resulted from evidence-based assessment by faculty and instructional staff from the Newark College of Engineering that increased instruction in computer programming and applications was needed, in recognition of the fact that students will increasingly be called on to interface with a variety of malleable software systems; conversely, students in majors in which programming is not a significant activity needed alternatives that included the use of productivity software or a general introduction to the history and social significance of computing in the modern world. The College of Computing Sciences rapidly replied to this request.
Table 12.0. The NJIT General University Requirements

<table>
<thead>
<tr>
<th>GUR DISCIPLINE</th>
<th>DESCRIPTION</th>
<th>NUMBER OF CREDITS</th>
<th>ASSESSMENT</th>
<th>USE</th>
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<tbody>
<tr>
<td>Computing Sciences</td>
<td>An understanding of the nature of computing, its impact on society, and the driving forces behind its pervasive deployment is integral to effective functioning as a professional and as a citizen.</td>
<td>3 credits</td>
<td>Review retention rates in courses; revise course content</td>
<td>Creation of new course model</td>
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<tr>
<td>Cultural History</td>
<td>All educated individuals are expected to understand and appreciate history and the world’s cultures.</td>
<td>3 credits</td>
<td>Embedded assessment</td>
<td>Addition of 6 credit English prerequisite</td>
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<tr>
<td>English</td>
<td>The ability to communicate ideas is an essential characteristic of educated individuals. All students are expected to achieve proficiency in both oral and written English.</td>
<td>6 credits</td>
<td>Portfolio and EPortfolio assessment; automated essay scoring</td>
<td>Adoption of national model of outcomes; social media experiment; substantial reduction of basic skills courses</td>
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<tr>
<td>Humanities</td>
<td>The ideals of a liberal education transcend particular major fields and career goals. All students are expected to develop an interest in specific areas within the humanities.</td>
<td>6 credits of junior-level electives; 3 credits of senior seminar</td>
<td>Portfolio and EPortfolio assessment</td>
<td>Course refinement; Modified syllabi to standardize technical writing content</td>
</tr>
<tr>
<td>Management</td>
<td>All students are expected to develop the management skills needed to function effectively in an organizational setting.</td>
<td>3 credits</td>
<td>Monitor course evaluations, review syllabi for all GUR courses</td>
<td>Modified syllabi to standardize content</td>
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<tr>
<td>Mathematics</td>
<td>The ability to reason qualitatively and quantitatively, to understand probability, and to apply mathematical models to a variety of circumstances is fundamental to making informed decisions in the modern world.</td>
<td>6 credits, including at least 1 credit of probability and statistics</td>
<td>Review of course results and analysis of placement process</td>
<td>Retention and curricular progression; elimination of the calculus requirement and all basic skills courses</td>
</tr>
<tr>
<td>Natural Sciences</td>
<td>The natural sciences provide the basis for our knowledge of the physical universe and for technological progress. All students are expected to develop a thorough understanding of at least one laboratory science.</td>
<td>7 credits, including at least 1 credit of lab</td>
<td>Student transcript analysis to assess performance and scheduling</td>
<td>Modify syllabi, change physics requirements to improve placement</td>
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<tr>
<td>Physical Education</td>
<td>Physical education conveys to students the importance of good health and fitness through planned exercise and recreational activities.</td>
<td>2 credits</td>
<td>Monitor student satisfaction</td>
<td>Course refinement</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>An understanding of the social sciences is essential in order to understand the economic, social, and political forces at work in our world.</td>
<td>6 credits</td>
<td>Student transcript analysis</td>
<td>Addition of social science courses for students</td>
</tr>
</tbody>
</table>

Under the same framework of outcomes-based change, a second writing course for first-year students has been added. This course was implemented based on the requests of faculty university-wide to increase the writing and oral presentation proficiencies of lower division students, as well as to
facilitate the transfer of English composition credits from NJ Community Colleges, where a full year sequence is the norm. In spring 2011, the UCRC and CAA passed a GUR change that includes making this course a pre-requisite to any cultural history course. Every program on campus recognized the value in a second writing course and advised students to take it. At present, first-year writing at NJIT is designed and assessed in accordance with WPA Outcomes Statement for First-Year Composition, the national outcomes statement designed by the Council of Writing Program Administrators, as well as with the Framework for Success in Postsecondary Writing endorsed by the Council, the National Council of Teachers of English, and the National Writing Project; as analyzed in Chapter 14, course outcomes are assessed by a portfolio system that has been documented, as is the case with the information literacy initiative described in Chapter 11, in national and regional presentations and peer-reviewed publications. Along with the new writing curriculum, the information literacy initiative analyzed in Chapter 11 is an integral part of first-year writing. Similar feedback from faculty and administrators as well as the assessment of the Department of Mathematical Sciences has recently led to improvements in the math GUR.

REVISING THE MATH GUR: At a meeting on April 13, 2011, the Faculty Council, together with the faculty and instructional staff, reviewed and approved changes to the mathematical science requirement of the GUR. The chair of the department desired to retain the goal of the GUR that that the ability to reason qualitatively and quantitatively, to understand probability, and to apply mathematical models to a variety of circumstances remained fundamental to decision making in the modern world. However, the need for all admitted students to demonstrate proficiency in calculus was no longer required across all degree programs. This change, approved by the faculty and instructional staff, reflects a desire by the NJIT community to revisit and modernize the GUR to ensure that the needs of all undergraduate majors are addressed. To assure that students have the knowledge and skills needed to compete in a global environment of the 21st century, a comprehensive GUR review is needed to validate that which is currently in place and to design that which will yield a meaningfully cohesive force for undergraduate students.

ASSESSMENT OF THE GENERAL UNIVERSITY REQUIREMENTS: Assessment of the GUR, analyzed in Chapter 14, is achieved through the use of locally-developed methods and nationally-based tests. A significant assessment policy was unanimously approved by the Undergraduate Curriculum Review Committee on January 23, 2012, that all syllabi must have identified course learning goals and plans for assessment of student learning. To ensure that present undergraduate courses offered in support of a major adhere to this policy, the committee agreed that articulation of learning outcomes and demonstration of their assessment would become part of the NJIT Program Review Process described in Chapter 14. As well, the committee agreed that the GUR would itself be considered a program; as such, each of the nine GUR disciplines identified in Table 12.0 has been sequenced into the program review process. On-going demonstration of undergraduate achievement of the NJIT Core Competencies—writing, reading and critical thinking; quantitative reasoning; and information literacy—will thus be assured by this new policy.

CONCLUSIONS: Working Group 7 was charged to determine compliance with MSCHE Standard 12: General Education. The Working Group found that NJIT had achieved emerging excellence in the following areas: creation of a substantial program of general education to enhance students’ intellectual
growth; implementation of a program of general education where the skills and abilities developed in
general education are applied in the major; implementation of the study of values, ethics, and diverse
perspectives; accountability of institutional requirements assuring that, upon degree completion,
students are proficient in oral and written communication, scientific and quantitative reasoning, and
technological competency; web-based communication of general education requirements in official
publications; and assessment of general education outcomes within the institution’s overall plan for
assessing student learning.

**STRATEGIES FOR THE FUTURE:** After extensive deliberation on the university’s commitment to its
program of general education, NJIT has identified the following area of improvement. These two areas
will be integrated into the strategic planning process:

1. NJIT will continue its successful practice of incremental and continuous GUR improvement
to strengthen the NJIT mission and represent the strengths of the faculty and instructional
staff; as such, the process of on-going GUR review will ensure content relevance, promote
interdisciplinary inquiry, and sustain innovative programs such as information literacy;
2. NJIT will continue to design, develop, and evaluate Learning Communities for first-time,
full-time students.