

Memo

To: Faculty Senate
From: Anthony J. Steinhoff, General Education Committee Chair
Date: April 1, 2008
Re: General Education Committee 2007-08 Report

Executive Summary of General Education Committee activities in 2007-08:

- Reviewed 14 student petitions.
- Certified one new UTC course for the general education curriculum (UHON 317r, behavioral and social sciences category).
- Reviewed 3 courses placed on probation in AY 2007-07. All three courses (PHIL 425, PHYS 104/184, and SOC 250) were recertified.
- Completed recertification reviews of 26 courses. As of 1 April, two courses have been placed on probation (PHYS 230/280 and PHYS 231/281). All other reviewed courses were recertified (see Attachment A). With this round, the first full cycle of recertification reviews of the General Education curriculum established in 1999 has been completed.
- Resolved that courses that have not been offered within an entire recertification cycle be decertified (resolution approved by the Faculty Senate on 20 September 2007). As a result of this decision, one course (CHEM 168/70) was decertified.
- Resolved that the committee will no longer consider general education petitions that seek to have non-certified UTC courses fulfill UTC general education requirements. The Faculty Senate approved this course of action on 20 September 2007.
- The committee continued discussion of piloting a capstone-style course revolving around the topic of public health. However, due to Dr. Greg Heath's current obligations, formal action on this project will have to be delayed until 2008-09.
- Overhauled the design and content of the General Education Committee website.
- Modified the list of required elements in general education course syllabi, most notably by requiring that all syllabi indicate that the course has been approved for the general education curriculum.

- Made a recommendation to the Provost's office for how UTC should assess General Education, both for SACS and internal UTC purposes. As part of that:
 - Established a set of competencies for each of the category areas and for the UTC general education program overall (Appendix B);
 - Recommended that assessment information be drawn from the recertification process, available standardized testing data, results from surveys like the NSSE, and course-embedded measures;
 - Advocated approaching course-embedded assessment via the "institutional portfolio" model.
- In February 2008, the Provost's office announced that it had endorsed the committee's recommendations. To facilitate the rolling out of the institutional portfolio process in Fall 2008, the committee has been developing a set of assessment rubrics and an overview of the assessment process, which it aims to present to the faculty later in April.

UTC GENERAL EDUCATION COMMITTEE

ANNUAL REPORT, 2007-08

Once again, the academic year 2007-08 was a busy one for the General Education committee. It was also highly productive. Not only did the committee see to its normal duties of reviewing student petitions and certification proposals while also attending to the year's round of recertification reviews, it also managed to bring a number of outstanding projects to completion. As committee chair, I am thankful for the hard work of each of the committee's members. Without their dedication and sincere interest in the values of general education at UTC, it would have been impossible to accomplish this vital work.

A. Student Petitions

So far, the committee has reviewed thirteen general education-related student petitions. It approved six of these, denied six, and granted one in part.

B. Course Certifications

During the academic year, the committee received one proposal to certify a course for the general education program: UHON 317r (Contemporary Issues in Social Science). Responding to the concerns raised by the committee at the 16 January 2008 meeting, UHON revised its proposal and resubmitted it for consideration on 29 February. Satisfied that its earlier objections had been addressed satisfactorily, the committee moved to certify UHON 317r in the Behavioral and Social Sciences category 12-0-0. By the same vote, it granted the UHON program's request to make the approval retroactive to Fall 2007 so that students who took this course as part of their core UHON-GenEd program would not have to petition for the necessary credit.

C. Course Recertifications

As part of its efforts to complete the first full cycle of recertification reviews for the General Education program launched in 1999, the committee acted on a number of courses. In Fall 2007, it looked at three courses that the previous year's committee had placed on probation: PHIL 425, PHYS 104/184, and SOC 250. In each case the committee moved to recertify the course.

It also proceeded with the final batch of recertification reviews for the cycle, involving 26 courses. As of 1 April, the committee has acted on all but 5 of these courses. It resolved to place two courses (PHYS 230/280 and PHYS 231/281) on probation. The Physics Department will be asked to address the problems raised by the course liaison and, if continued certification is desired, resubmit the courses in Fall 2008. The other 19 courses were all recertified. A summary of the committee's recertification actions appears as Appendix A.

In the course of updating the master recertification schedule, two minor problems were identified and resolved. First, it was discovered that an "empty" year had somehow been entered into the schedule, such that the 5-year cycle was actually completed over six years. This oversight has been

corrected on the current version of the schedule (Appendix A). It primarily affects courses initially reviewed between 2005 and 2008. Second, the committee needed to determine how to treat courses that were not taught during a complete review cycle (in this case, had not been taught since 1999). At its meeting of 14 September, the committee resolved that all such courses should be decertified. The Faculty Senate ratified this decision on 20 September. As a result of this decision, one course, CHEM 168/70, was decertified.

D. Petitions Policy Change

Responding to a request from the Records and Registration office, the committee developed language to define types of student requests that could not be petitioned. After a lengthy deliberation the committee resolved on 14 September:

“UTC courses that have not been certified for the General Education curriculum may not be used to satisfy any General Education requirement. Consequently, student petitions seeking credit for non-certified UTC courses will not be accepted by the Records Office nor the General Education Committee.”

The Faculty Senate also ratified this decision on 20 September. It will apply only to petitions filed with the Records Office after 20 September 2007.

E. Capstone Course on Public Health

In 2006-07, a subcommittee investigated the possibility of setting up a type of capstone course that would provide a way for integrating a range of general education outcomes while also providing new and desirable opportunities for assessing the general education experience at UTC. Dr. Greg Heath (HHP) spoke to the committee about his ideas for such a course, a team-taught seminar focusing on the topic of public health. This elicited considerable interest from the committee membership. While it remained unclear how the idea of capstone courses could be folded into the overall program, the committee thought it would make sense to pilot such a course and see how it worked. Dr. Heath was thus asked to develop a formal proposal for the course, which the committee could review and certify, at least on a temporary basis. Unfortunately, Dr. Heath's many obligations have prevented him from being able to realize this goal during the current academic year. It is hoped that further progress will be made on the capstone concept during 2008-09.

F. General Education Website

Another major project completed during this year was a total overhaul of the General Education committee website: www.utc.edu/Administration/GeneralEducation. With assistance from the University Webmaster, Chris Tanis, the old site was converted into the official university design format, old and missing links were updated, content areas reorganized (including the creation of a special members-only section, which has not yet been activated), and certain committee records (including the “Green Book” description of the current general education program) scanned and made available via the site.

Dr. Steinhoff, as acting webmaster for the site, has endeavored to post materials from this year's committee work to the site on a regular basis. Additional work remains to get previous committees' records added. Furthermore, as the supporting documents for the new assessment

program are developed and approved, they will also need to be posted to the site (in the “assessment” content area).

G. General Education Syllabi Requirements

In the course of updating the website, it became apparent that touchups were necessary to some of the documents that clarify committee procedures and policies. This led to revisions in the model certification proposal and course syllabus posted on the website (a more rigorous reworking of these models would still be in order). It also resulted in the refinement of the list of syllabus requirements for all general education courses:

<http://www.utc.edu/Administration/GeneralEducation/GESyllabus.php>

Many of these modifications aimed to establish a more reasonable set of syllabus guidelines, while also underscoring which pieces of information were essential (and, in many instances, required by current SACS standards). However, as part of its efforts to call attention to courses’ status as general education courses, the General Education committee also resolved that, beginning in Spring 2008, syllabi for certified courses must include the following statement:

“This course fulfills a general education requirement in [name of General Education category].”

H. General Education Assessment

Arguably the most important of the committee’s achievements this year was the development of program for assessing general education at UTC. While the initial impetus for this came from SACS, it has become equally evident that a well-designed assessment program could also address a variety of critical institutional needs. In particular, it could function as a formal mechanism for reviewing this key element of the UTC curriculum. These two considerations figured prominently in the choices the committee made with respect to how the university should proceed with assessment.

In the Fall, the committee succeeded in bringing to completion the discussions of competency objectives for general education that have occupied the committee for a number of years. Working closely from the goals and objectives elaborated in the “Green Book” (the description of general education approved by the faculty in 1997), the committee adopted a revised list of competencies for each of the eight general education program areas. It also distilled the overall aims of general education at UTC into a set of seven overarching learning objectives. These lists appear as Appendix B.

Having reached consensus about learning goals, the committee addressed the issue of how to measure them. The main problem here, it emerged, was gathering meaningful data on what students actually learned in the courses identified as general education courses. The recertification process, important as it is, only sheds light on what instructors are attempting to do in the classroom. To address the issue of student learning, the committee decided that a three-prong approach would be most effective:

- Use the results from standardized tests currently conducted by the university to the degree that that made sense. To that end, Dr. Steinhoff also engaged in a series of discussions with Dick Gruetzemacher (Institutional Research) to pursue the idea of pilot runs of the MAPP test at UTC, which promises to provide better data on some of the general education competencies than the current CAAP exam.
- Rely on survey data, such as that generated by the National Survey of Student Engagement (NSSE), to examine student involvement in collaborative and multidisciplinary learning. The committee may need to develop additional questions for this, which could be incorporated into the survey to be conducted again in 2008-09.
- Develop course embedded-measures that will provide a meaningful, but also manageable sample of actual student learning in UTC's general education courses.

Of these three, the last poses the greatest difficulties. The idea of having departments determine individually how to assess competencies in the courses they taught was viewed as too complicated and unwieldy. Likewise, the notion that we examine student work completed in senior seminars or departmental capstone courses was problematic, because these courses are not specifically certified for general education. That is, while general education learning very likely occurred in such courses, there was no necessary relationship between performance in those courses and learning in the official general education curriculum.

At this stage, discussions with the Provost's office also clarified the committee's future role in and responsibility for the assessment process. Since assessment was an institutional commitment, requiring resources and authority well beyond what the committee has at its disposal, assessment would become the charge of the Provost's office. The General Education Committee will continue to play a major part in discussions over general education assessment, especially as the new program is launched. It will define what needs to be assessed and mechanisms for carrying out the assessment. Once data is obtained from the first phases of the program, the committee will also figure prominently in the process of developing an action plan for strengthening the general education program further. Moreover, the committee will receive regular reports from the Provost's office (or the Office of Institutional Research) on the outcomes of each year's assessment activities. In this way, significant faculty involvement in general education assessment will remain secure.

At its meeting of 16 January, the committee approved a series of recommendations to the Provost regarding the overall contours of a general education assessment program for UTC. These recommendations were endorsed by the Provost the following month. The central element of these recommendations was the proposal to address the issue of course-embedded assessment by means of an "institutional portfolio," a model derived from the program in place at Johnson County Community College in Kansas (the 3rd largest institution of higher education in Kansas).

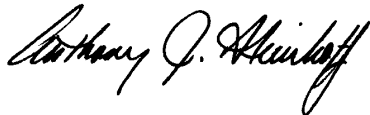
The key features of this approach are as follows:

- Each semester, sections of courses in each of the eight general education categories will be identified to participate in the assessment activities. Instructors for the sections chosen will be responsible for coming up with a suitable submission of ungraded course work for evaluation purposes.

- The goal is to obtain a sample of 50-60 items of student work (“artifacts”) per general education category per semester. As soon as the artifact (problem set, essay, paper, test, or even mini-portfolio) is submitted to the instructor (as part of regular course work), it will be copied by the “assessment office” so that general education assessment is kept clear of regular course evaluation. (The originals will be immediately returned to instructors for their grading.)
- The semester after the artifacts have been gathered, they will be graded by scoring teams consisting of both specialist and non-specialist faculty. For example, the team for the rhetoric and composition artifacts may include faculty members from English, Physics, Nursing, and Business Management. Each team will score the artifacts according to a set of rubrics that have been developed by the General Education committee.
- Team leaders will be responsible for gathering the scored artifacts and forwarding them to the “assessment office,” which will take charge of tabulating the data and reporting the results to the General Education Committee.

At the final two scheduled meetings for the academic year, the committee will be finalizing a working version of the assessment rubrics (the current draft of these appears as Appendix C). It will also start to address a range of logistical questions in which the campus community will likely be interested (e.g., How many scoring teams? How will the members be chosen? What kind of training/orientation will team members receive? How will the requisite financial and temporal resources be secured?) Dr. Steinhoff also envisions making a separate presentation to the Faculty Senate on April 19 about the assessment program.

Respectfully submitted

A handwritten signature in black ink, reading "Anthony J. Steinhoff". The signature is written in a cursive, flowing style.

Anthony J. Steinhoff
UTC General Education Committee Chair

Appendix A

Recertification Review Schedule

Recertification Schedule for UTC General Education Courses

Category	#	Course #	Course Title	Recertification Dates		Comments	Responsibility
				Last	Next		
Rhetoric and Composition	4	ENGL 121	Rhetoric and Composition	2002-2003	2008-2009		
		ENGL 122	Rhetoric and Composition	2002-2003	2008-2009		
		UHON 101 (1)	Humanities I	2003-2004	2009-2010		
		UHON 102 (1)	Humanities II	2002-2003	2008-2009		
Cult&Civ West Humanities	10	CLAS 113	Western Humanities I	2004-2005	(decertified)	never offered	
		ENGL 113	Western Humanities I	2004-2005	2010-2011		
		ENGL 115	Western Humanities II	2005-2006	2011-2012		
		ENGL 203	Literature of the Humanities	2002-2003	2009-2010		
		ENGL 204	World Literature from the Renaissance	2002-2003	2009-2010		
		PHIL 101	Western Philosophical Traditions I	2003-2004	2009-2010		
		PHIL 102	Western Philosophical Traditions II	est '04	2009-2010		
		PHIL 113	Western Humanities I	2005-2006	2011-2012		
		PHIL 115	Western Humanities II	//	2007-2008	Spring 2008	Steinhoff
		UHON 101 (1)	Humanities I	2003-2004	2009-2010		
UHON 102 (1)	Humanities II	2002-2003	2008-2009				
Cult&Civ Non Western	13	ANTH 208	Cultural Anthropology	2002-2003	2008-2009		
		ANTH 333	Peoples and Cultures of India	2004-2005	2009-2010		
		ENGL 316	African Literature	2003-2004	2009-2010		
		GEOG 103	World Geography	2004-2005	2010-2011		
		HHP 333	Food and Culture	2003-2004	2009-2010		
		MUS 311/ANTI	Musics of the World	2005-2006	2011-2012		
		POLS 104	Politics, Culture, and Society: Non-Western Views	2005-2006	2011-2012		
		REL 211	Religions of the East	2005-2006	2011-2012		
		REL 320	Religions of India	est '06	2012-2013		
		UHON 216	Traditions of Latin America	//	2007-2008	Spring 2008	Sturzer
		UHON 217	The Chinese and Japanese Traditions	//	2007-2008	Spring 2008	Sturzer
		UHON 218	The Tradition of India	2004-2005	2010-2011		
		UHON 219	Africa Through Its Literature	2002-2003	2008-2009		
ENGL219?? Cult&Civ World History	3	HIST 103	World Civilizations I	2003-2004	2009-2010		
		HIST 104	World Civilizations II	2004-2005	2010-2011		
		HIST105	World Civilizations III	2004-2005	2010-2011		
2. Humanities	26	CLS 310	The Greco-Roman World	2005-2006	(defunct)		
		CLS 396	Classical Methodology	2005-2006	2011-2012		
		CPSC 385	Ethical and Social Issues in Computing	//	2007-2008	Spring 2008	Bromley
		ENGL 131	Values in 20th Century Fiction	//	2007-2008	Spring 2008	Warren-Kring
		ENGL 133	Introduction to Literature	2004-2005	2010-2011		
		ENGL 211	Survey of English Literature to 1800	2003-2004	2009-2010		
		ENGL 212	Survey of English Literature since 1800	2003-2004	2009-2010		
		ENGL 213	American Literature to 1855	2004-2005	2010-2011		
		ENGL 214	American Literature to 1855	2004-2005	2010-2011		
		ENGL 219/HUI	African-American Literature	2005-2006	2011-2012		
		ENGL 257/HUI	The Romantic Experience	2005-2006	2011-2012		
		ENGL 307	Shakespeare: an Introduction	2002-2003	2008-2009		
		ENGL 331	American Women Writers	//	2007-2008	Spring 2008	Warren-Kring
ENGL 335 / HI	African-American Slave Narrative Tradition	//	2007-2008	Spring 2008	Warren-Kring		

Category	#	Course #	Course Title	Recertification Dates		Comments	Responsibility	
				Last	Next			
Fine Arts		HIST 203	United States History to 1865	2004-2005	2010-2011			
		HIST 204	United States History from 1865	2003-2004	2009-2010			
		PHIL 201	Introduction to Philosophy	est '06	2012-2013			
		PHIL 221	Introduction to Ethics	2005-2006	2011-2012			
		PHIL 325	Biomedical Ethics	est '06	2012-2013			
		PHIL 425	Ethics and the Professions	2005-2006	2011-2012	Recertified		
		REL 103	Introduction to the Study of Religion	//	2007-2008	Spring 2008	Carter	
		REL 110	Introduction to Western Religions	//	2007-2008	Spring 2008	Carter	
		REL 213	A History of Judaism	2003-2004	2009-2010			
		REL 221	Biblical Literature, Old Testament	2002-2003	2008-2009			
		REL 222	Biblical Literature, New Testament	2003-2004	2009-2010			
		REL 236	Religion in American Life	2003-2004	2009-2010			
	???		UHON 214	Classical and Medieval Historical and Political Thought	2004-2005	2010-2011		
			ART 111	Introduction to Art	2004-2005	2010-2011		
		18	ART 214	The History of Western Art from Prehistoric to Medieval	2005-2006	2011-2012		
			ART 215	The History of Western Art from the Renaissance	2005-2006	2011-2012		
			ART 301	Art Structure	//	2007-2008	Spring 2008	recertified
			MUS 111	Introduction to Music	//	2007-2008	Spring 2008	recertified
			MUS 317	Survey of Jazz	2002-2003	2008-2009		
			MUS 320	African American Music: An Introduction	est '06	2011-2012		
			THSP 111	Introduction to the Theatre	2002-2003	2008-2009		
			THSP 113	Introduction to Dance	2003-2004	2009-2010		
		THSP 115	Theatre: Introduction to Performance	2003-2004	2009-2010			
		THSP 255	Theatre to the Renaissance	est '06	2011-2012			
		THSP 257	Theater from the Renaissance to the 20th Century	est '06	2011-2012			
		THSP 280	Introduction to Film	2004-2005	2010-2011			
		THSP 457	Conceptual Foundations of the Modern Theater	est '06	2011-2012			
		UHON 103	Fine Arts: Music History and Aesthetics	2004-2005	2010-2011			
		UHON 104	Introduction to Art	2005-2006	2011-2012			
		UHON 105	Introduction to the Theatre	2005-2006	2011-2012			
???		UHON 106	Film Studies	//	2007-2008	Spring 2008	recertified	
		ANTH 152	Introduction to Anthropology	//	2007-2008	Spring 2008	recertified	
Behav&Social Sci	22	ANTH 211	Introduction to Archaeology	2002-2003	2008-2009			
		COMM 320	Mass Comm Perspectives	2003-2004	2009-2010			
		CRMJ 110	Intro to Criminal Justice System	2003-2004	2009-2010			
		CRMJ 295	Violence Against Women	2004-2005	2010-2011			
		ECON 101	Principles of Economics: Macroeconomics	2003-2004	2009-2010			
		ECON 102	Principles of Economics: Microeconomics	2004-2005	2010-2011			
		GEOG 104	Cultural Geography	2005-2006	2011-2012			
		HECO 340	Family Relations: Family Interaction	2005-2006	2011-2012			
		HHP 407	Sociology/Psychology of Exercise Sci. & Leisure Sports	2004-2005	2010-2011			
		PANM 101	Team Participation	//	2007-2008	Spring 2008	deactivated	
		POLS 101	American Government	//	2007-2008	Spring 2008	Williams	
		POLS 102	World Politics	2002-2003	2008-2009			
		POLS 103	Controversies in Public Policy	2002-2003	2008-2009			
		PSYC 101	Introduction to Psychology	2004-2005	2010-2011			
		PSYC 241	Psychology of Individual Differences	2004-2005	2010-2011			

Category	#	Course #	Course Title	Recertification Dates			Comments	Responsibility
				Last	Next	Recert Review		
Natural Sci	26	SOCW 210	Family Experience: Ethnicity, Race, Class and Gender	2007-2008	2012-2013	Spring 2008		Symes
		SOC 125	Sociology of Social Problems	2004-2005	2010-2011			
		SOC 151	Introduction to Sociology	2004-2005	2010-2011			
		SOC 215	The Sociology of the Family	2005-2006	2011-2012			
		SOC 220	Small Group Behavior	2005-2006	(decertified)			
		UHON 315	Origins of the Social Sci	//	2007-2008	Spring 2008	Recertified	Eskilden
		UHON 316	Contemporary Social Sci	//	defunct			
		UHON 317	Contemporary Issues in Social Science	est. '08	2012-2013			
		USTU 200	Introduction to Women's Studies	2003-2004	2009-2010			
		AST 101/181	Introduction to Astronomy The Solar System	2004-2005	2010-2011			
		AST 102/182	Introduction to Astronomy Stars to Galaxies	2004-2005	2010-2011			
		BIOL 110	Conservation of Biodiversity (aka ESC110)	2005-2006	2008-2009			
		BIOL 121	Principles of Biology I	2004-2005	2010-2011			
		BIOL 122	Principles of Biology II	2005-2006	2011-2012			
		BIOL 210	Microbiology and Health	2003-2004	2009-2010			
		CHEM 111	Chemistry and the Environment	//	2007-2008	Spring 2008	Recertified	Hiestand
		CHEM 119/BIG	Light & Life	//	2007-2008	Spring 2008	Recertified	Hiestand
		CHEM 121/123	General Chemistry I	2002-2003	2008-2009			
		CHEM 122/124	General Chemistry II	2002-2003	2008-2009			
		CHEM 125	Honors General Chemistry	2003-2004	2009-2010			
		CHEM 168/70	Survey of Organic and Biochemistry/Lab	//	decertify?	Spring 2008	decertified	never offered
		ENGR 211	Pollution Controls	2005-2006	2011-2012			
		ESC 110	Conservation of Biodiversity (aka BIOL 110)	2004-2005	2010-2011			
		ESC 150	Introduction to Environmental Problems I	//	2007-2008	Spring 2008	Recertified	Wakim
		ESC 151	Introduction to Environmental Problems II	//	2007-2008	Spring 2008	Recertified	Wakim
		GEO 111/81	Physical Geology	2002-2003	2008-2009			
GEO 112/82	Historical Geology	2002-2003	2008-2009					
GEO 116	Current Geological Perspectives on Earth	2003-2004	2009-2010					
GEO 225	Oceanography	2007-2008	2012-2013	Spring 2008	Recertified	Kovach		
GNSC 111/81	The Physical Environment: Atoms to Galaxies	2004-2005	2010-2011					
GNSC 115	Sci and Society	2004-2005	2010-2011					
PHYS 103/83	General Physics-Mechanics & Heat	2004-2005	2010-2011					
PHYS 104/84	General Physics - Electromagnetism and Optics	2005-2006	2011-2012	Fall 2007	Recertified			
PHYS 230/80	Principles of Physics-Mechanics & Heat	//	2007-2008	Spring 2008	Probation	Kovach		
PHYS 231/81	Principles of Physics - Electromagnetism and Optics	//	2007-2008	Spring 2008	Probation	Kovach		
UHON 120	Development of Scientific Thought	2002-2003	2008-2009					
MATH 123	Mathematics in Our Modern World	2002-2003	2008-2009					
MATH 131	College Algebra	2005-2006	2011-2012					
MATH 136	Calculus for Management, Life, and Social Sci	2003-2004	2009-2010					
MATH 144	Precalculus I	2004-2005	2010-2011					
MATH 145	Precalculus II	2004-2005	2010-2011					
MATH 151/52	Calculus I	2005-2006	2011-2012					
MATH 214	Principles of Elementary Mathematics	2005-2006	defunct					
MATH 216	Mathematics for Elementary and Middle School	est '06	2011-2012					
BIOL 216	Biostatistics	//	2007-2008	Spring 2008	Recertified	Symes		
BMGT 211	Statistical Mthds for Bus	//	2007-2008	Spring 2008	Recertified	Aborn		
ENGR 222	Probability and Statistics for Engineering	2003-2004	2009-2010					
Mathematics	7							
Statistics	10							

Category	#	Course #	Course Title	Recertification Dates			Comments	Responsibility
				Last	Next	Recert Review		
		HHP 401	Measurement & Eval in Exerc Sci & Leisure Sports	2004-2005	2010-2011			
		PANM 205	Intro to Statistics for Health & Human Services	2002-2003	2008-2009			
		MATH 210	Introductory Statistics	2003-2003	2008-2009			
		MATH 307	Applied Statistics	2004-2005	2010-2011			
		MATH 408	Mathematical Statistics	2004-2005	2010-2011			
		PSYC 201/204	Res Methodology: Introductory Statistics in Psych.	2005-2006	2011-2012			
		SOC 250	Social Statistics	2005-2006	2011-2012	Fall 2007	Recertified	
		(1): UHON students satisfy both the RC and the WH requirements with UHON 101 and 102.						
		NB: Beginning in 2008-09, the review cycle for all courses is once every five years. Thus, courses up in 2008-09 will again be up in 2013-14.						
		NOTE: Any course that has not been offered within the five-year review cycle will be automatically decertified.						
		Total # of Gen Ed Courses:	139					

Appendix B

General Education Competencies Document

UTC GENERAL EDUCATION COMPETENCIES

I. OVERALL PROGRAM

Competencies	Measures
1. Communicate effectively in both speech and in writing.	TBA
2. Reason and think clearly.	TBA
3. Employ qualitative and quantitative information to define and defend viewpoints, solve problems, and make decisions.	TBA
4. Develop a comparative, historical, and global perspective on the diversity of human experience.	TBA
5. Recognize important issues confronting human society and the human condition.	TBA
6. Understand major scientific and technological influences on society.	TBA
7. Recognize the contributions of collaborative and multidisciplinary approaches to intellectual investigation and problem solving.	TBA

II. KNOWLEDGE AREAS/GENERAL EDUCATION CATEGORIES

Knowledge Area/Gen Ed Category	Competencies (relevant overall competencies in parenthesis)	Measures
Behavioral and social sciences	Discuss how human beings function as individuals, citizens and members of groups using the major concepts and theories of at least one behavioral or social science (1, 2, 4, 5, 7).	Course embedded
	Evaluate theories, methods, findings, and applications of behavioral and social science research (2, 3, 4, 5, 7).	Course embedded
	Demonstrate how individuals and society are affected by the complexity and interdependencies of the contemporary world (1, 2, 3, 4, 6, 7).	
	Understand and apply the methods that scholars in the behavioral and social sciences use to study social phenomena (2, 3, 4, 6).	Course embedded
CC: Western humanities	Explain the broader social impact of behavioral and social scientific research (1, 2, 3, 4, 5, 7).	Course embedded
	Describe the great ideas, creative achievements, and modes of thinking in the western world (1, 2, 3, 4, 5).	Course embedded
	Analyze great works in the western artistic, literary, musical, philosophical, and religious traditions within their historical context (1, 2, 3, 4, 5, 7).	Course embedded
	Recognize the western tradition's contributions to the shaping of contemporary culture and society (2, 3, 4, 5, 7).	Course embedded

CC: Non-western cultures and civilizations	Describe the major characteristics and achievements of one or more non-western cultures and civilizations within their historical context (1, 2, 3, 4, 5, 7).	Course embedded
	Demonstrate how the histories, philosophies, and religions of non-western cultures shaped the development of their political, social, economic, and aesthetic values (1, 2, 3, 4, 5, 7).	Course embedded
	Compare non-western and western world views, modes of thought, and forms of social and cultural practice (2, 3, 4, 5, 7).	Course embedded
CC: World civilizations	Describe major social, religious, political, economic, scientific/technological, and aesthetic developments in the world's history from both global-comparative and culturally-specific perspectives (1, 2, 3, 4, 5, 7).	Course embedded
	Demonstrate how change over time, contingency, and cause-and-effect relationships shape historical understanding (1, 2, 3, 4, 7).	Course embedded
	Examine how cross-cultural forces have influenced the evolution of the world's civilizations and explain how different cultures have responded to similar ideas, inventions, and institutions (1, 2, 3, 4, 5, 6, 7).	Course embedded.
Humanities and fine arts	Identify significant developments and achievements in the humanities and fine arts and place them in their historical context (1, 2, 3, 4, 5, 7).	Course embedded
	Explain the relationship between creative expression and human experience and recognize how this relationship has evolved over time (1, 2, 3, 4, 5, 7).	Course embedded
	Examine value and belief systems and explain their role in humanistic inquiry and expression (1, 2, 3, 4, 5, 7).	Course embedded
	Evaluate the meaning of significant events and creative works using forms of reasoning, analysis, and exposition appropriate to the humanities and fine arts (1, 2, 3, 4, 5, 7).	Course embedded
Mathematics and statistics	Employ quantitative concepts and methods to solve mathematical and statistical problems (1, 2, 3, 6, 7).	Course embedded/test?
	Construct and interpret mathematical and statistical models of real world and abstract phenomena (1, 2, 3, 5, 6, 7).	Course embedded/test?
	Communicate mathematical/statistical knowledge using appropriate notation and vocabulary (1, 2, 3, 6).	Course embedded/test?
	Recognize the limits of mathematical and statistical methods in evaluating human problems (1, 2, 3, 5, 6, 7).	Course embedded
Natural sciences	Identify and apply the theories and methods scientists use to explore natural phenomena (2, 3, 6, 7).	Course embedded
	Recognize and place in historical context the achievements of the human mind in comprehending the natural/physical world and the universe (1, 2, 3, 4, 5, 6, 7).	Course embedded
	Explain how creativity and logical reasoning influence the development of scientific knowledge (1, 2, 3, 5, 6, 7).	Course embedded
	Describe the strengths and limitations of empirical approaches to understanding and influencing the natural world (1, 2, 3, 6, 7).	Course embedded
	Discuss how scientific and technological developments have both benefited and created significant concerns for human society (1, 2, 3, 5, 6, 7).	Course embedded

Rhetoric and composition	Recognize that writing always takes place within specific rhetorical situations (1, 2, 3). Compose and revise texts for a variety of purposes and audiences, employing standard documentation styles and Standard American English (1, 2, 3, 7). Conduct research, summarize and evaluate ideas, develop arguments, and organize supporting details (1, 2, 3, 7). Read accurately and critically, recognizing assumptions, implied statements, and differences between fact and opinion (1, 2, 3, 7).	Course embedded Course embedded Course embedded Course embedded
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Appendix C

Assessment Rubrics for General Education (draft)

Assessment Rubrics: UTC General Education Program

Introductory Remarks

The pages that follow present a set of rubrics to guide the evaluation of student course work for the purposes of UTC's General Education Assessment Program. A distinct group of rubrics has been established for each of the eight categories in the current general education program in order to tailor, as best as possible, the rubric to the types of competencies (learning objectives) laid out for each category. In devising the rubrics, care has been taken to frame them in terms of the competencies developed by the General Education Committee in 2007-08. In a couple of instances, it seemed most effective to split the competency into two separate parts and evaluate each part separately. Thus, in the humanities/fine arts, natural sciences, non-western civilizations and cultures, and western humanities, the "knowledge of historical context" is treated apart from the disciplinary content knowledge. Conversely, in the behavioral and social sciences rubrics, two competencies are evaluated at once, since the goal, in fact, is that students be able to perform a single knowledge objective at two levels.

All of the category rubrics are based on one of three models. Differences in the standards of judgment between categories stem primarily from the differences in the rubric model.

The first model, employed for the behavioral/social sciences, humanities/fine arts, natural sciences, non western cultures and civilizations, and western humanities categories, relies on Bloom's taxonomies to evaluate the level of student learning in each of the category's knowledge objectives. This approach seemed to make the most sense given the learning objectives identified for these categories. Minor variations in the measure used (especially at levels 2 and 3) reflect differences in the way the competency statement is currently worded. For instance, in the behavioral and social science rubrics, knowledge objective B uses the word "applies", because the goal is to examine the student's ability to apply the disciplinary knowledge. However, in objective C, an emphasis on "analysis" seems more in keeping with the competency statement. Reflecting the common measurement approach, the rubrics for each of these categories also adopt a common standard of judgment: at least 60% of the artifacts evaluated will score at the level of "2" or higher. This performance standard is also consonant with the overwhelming majority of the competency statements in these categories.

By contrast, the second model, employed for the math/statistics and world civilizations categories, focuses on whether certain types of learning have occurred. The level at which this learning took place, while important, is not the primary issue. This approach, too, was dictated largely by the objectives established for each of the two categories. The rubrics, thus, rate the artifacts according to how much of the core learning has been demonstrated. Because of this shift in emphasis (at least as compared to the Bloom's-based rubrics), slightly higher standards of judgment have been set for these two categories: 70 percent at the level of "3" or higher (recognizing that this "3" is on a 5 point-scale for math, but a 4 point-scale for world civilizations). The variation in the two scales stems from the fact that there are four major outcomes that need demonstration in math/statistics, but only three in world civilizations.

For rhetoric and composition, a third approach seemed warranted. Although it is important that we evaluate how students fulfill the individual learning objectives in this category, it is also essential that the submissions be judged on their overall effectiveness as pieces of writing. Consequently, the rubrics were constructed to encourage a holistic approach to the evaluation of student writing, such that each score reflects overall performance in the various rhetoric and composition competencies. The choice to employ six different scoring levels was also deliberate. On the one hand, the six-point (as opposed to a five-point scale) helps to decouple assessment from course grading (which is normally done on the five-point A-F scale). On the other hand, it provides a more differentiated set of scores than would a four-point system (which would be the other way to avoid A-F-style) grading. Because the rubric assesses levels of performance, a standard of judgment similar to that in the Bloom's-based rubrics has also been established: 60 percent of the students will score "3" or higher (since "3" represents basic competency in this scheme).

Behavioral and Social Sciences

Competency Statements

1. Discuss how human beings function as individuals, citizens, and members of groups using the major concepts and theories of at least one behavioral or social science.
2. Evaluate theories, methods, findings, and applications of behavioral and social science research.
3. Demonstrate how individuals and society are affected by the complexity and interdependencies of the contemporary world.
4. Understand and apply the methods that scholars in the behavioral and social sciences use to study social phenomena.
5. Explain the broader social impact of behavioral and social scientific research.

Rubrics

A. Demonstrates knowledge of social behavior

- 4** = Compares, contrasts, or evaluates how human beings function as individuals, citizens, and members of groups, using the major concepts/theories of at least one behavioral/social science.
- 3** = Analyzes how human beings function as individuals, citizens, and members of groups, using the major concepts/theories of at least one behavioral/social science.
- 2** = Describes how human beings function as individuals, citizens, and members of groups, using the major concepts/theories of at least one behavioral/social science.
- 1** = Identifies characteristics of how human beings function as individuals, citizens, and members of groups.

B. Demonstrates knowledge of behavioral/ social science research (covers competencies 2 and 4)

- 4** = Compares, contrasts or evaluates major theories, methods, findings of behavioral/social science research and their application.
- 3** = Applies major theories, methods, findings or applications of behavioral/social science research.
- 2** = Discusses major theories, methods, findings or applications of behavioral/social science research.
- 1** = Identifies major theories, methods, findings or applications of behavioral/social science research.

C. Demonstrates knowledge of impact of the contemporary world

- 4** = Compares, contrasts, or evaluates how the complexities and interdependencies of the contemporary world affect individuals and society.
- 3** = Analyzes how the complexities and interdependencies of the contemporary world affect individuals and society.
- 2** = Describes how the complexities and interdependencies of the contemporary world affect individuals and society.
- 1** = Identifies how the complexities and interdependencies of the contemporary world affect individuals and society.

D. Demonstrates knowledge of impact of behavioral/social science research

- 4 = Evaluates the broader impact of behavioral and social scientific research.
- 3 = Explains the broader impact of behavioral and social scientific research.
- 2 = Describes the broader impact of behavioral and social scientific research.
- 1 = Identifies the broader impact of behavioral and social scientific research.

Standards

The standard of judgment is that 60 percent of the students will score 2 or higher on each outcome.

Suggested Assignment Guidelines

An appropriate assignment (e.g., essay, research paper, report, journal, portfolio, essay exam) would allow students to demonstrate content knowledge and critical skills by asking them to demonstrate (a) and at least two of the other category goals:

- a. Knowledge of behavioral/social science research
- b. Knowledge of social behavior (individual and group)
- c. Knowledge of impact of the contemporary world on individuals and society
- d. Knowledge of impact of behavioral/social science research

Student work *best suited* for evaluation would require synthesis or evaluation of subject matter and provide opportunities for students to compare and contrast, analyze relationships, evaluate the strength and weaknesses of arguments, and describe implications. Essays, papers, and essay tests often provide the best measure for these criteria. However, short answer test questions can be acceptable if they address the basic category standard (at least three of the goals stated above).

Western Humanities

Competency Statements

1. Describe the great ideas, creative achievements and modes of thinking in the western world.
2. Analyze great works in the western artistic, literary, musical, philosophical, and religious traditions within their historical context.
3. Recognize the western tradition's contributions to the shaping of contemporary culture and society.

Rubrics

A. Knowledge of ideas, creative achievements, and modes of thinking

- 4 = Compares, contrasts, or evaluates great ideas, creative achievements and modes of thinking in the western world.
- 3 = Analyzes great ideas, creative achievements and modes of thinking in the western world.
- 2 = Describes great ideas, creative achievements and modes of thinking in the western world.
- 1 = Identifies great ideas, creative achievements and modes of thinking in the western world.

B. Knowledge of great works

- 4 = Compares, contrasts, or evaluates great works in the western artistic, literary, musical, philosophical, and religious traditions.
- 3 = Analyzes great works in the western artistic, literary, musical, philosophical, and religious traditions.
- 2 = Describes great works in the western artistic, literary, musical, philosophical, and religious traditions.
- 1 = Identifies great works in the western artistic, literary, musical, philosophical, and religious traditions.

C. Knowledge of historical context

- 4 = Compares, contrasts, or evaluates the relationship between creative "text" and historical "context."
- 3 = Explains the relationship between creative "text" and historical "context."
- 2 = Describes the historical context of great works in the western artistic, literary, musical, philosophical, and religious traditions.
- 1 = Identifies the historical context of great works in the western artistic, literary, musical, philosophical, and religious traditions.

D. Knowledge of western tradition's contributions to contemporary culture and society

- 4 = Compares, contrasts, or evaluates how the western tradition has helped shape contemporary culture and society.
- 3 = Analyzes how the western tradition has helped shape contemporary culture and society.
- 2 = Describes how the western tradition has helped shape contemporary culture and society.
- 1 = Identifies how the western tradition has helped shape contemporary culture and society.

Standards

The standard of judgment is that 60 percent of the students will score 2 or higher on each outcome.

Suggested Assignment Guidelines

An appropriate assignment (e.g., essay, research paper, report, journal, portfolio, essay exam) would allow students to demonstrate content knowledge and critical skills by asking them to demonstrate at least three of the following:

- a. Knowledge of ideas, creative achievements, and modes of thinking in the western tradition
- b. Knowledge of great works in the western tradition
- c. Knowledge of the historical context of great works in the western tradition
- d. Knowledge of how the western tradition has influenced/influences the contemporary world

Student work *best suited* for evaluation would require synthesis or evaluation of subject matter and provide opportunities for students to compare and contrast, analyze relationships, evaluate the strength and weaknesses of arguments, and describe implications. Essays, research papers, and essay tests often provide the best measure for these criteria.

Non-Western Cultures and Civilizations

Competency Statements

1. Describe the major characteristics and achievements of one or more non-western culture and civilizations within their historical context.
2. Demonstrate how the histories, philosophies, and religions of non-western cultures shaped the development of their political, social, economic, and aesthetic values.
3. Compare non-western and western world views, modes of thought, and forms of social and cultural practice.

Rubrics

A. Knowledge of non-western civilizations

- 4** = Compares, contrasts, or evaluates the major characteristics and achievements of at least one non-western culture or civilization.
- 3** = Explains the major characteristics and achievements of at least one non-western culture or civilization.
- 2** = Describes major characteristics and achievements of at least one non-western culture or civilization.
- 1** = Identifies major characteristics and achievements of at least one non-western culture or civilization.

B. Knowledge of historical context

- 4** = Compares, contrasts, or evaluates the relationship between the major characteristics and achievements of non-western cultures and their historical context(s).
- 3** = Explains the relationship between the major characteristics and achievements of non-western cultures and their historical context(s).
- 2** = Describes the historical context of the major characteristics and achievements of at least one non-western culture or civilization.
- 1** = Identifies the historical context of the major characteristics and achievements of at least one non-western culture or civilization.

C. Knowledge of humanistic foundations of non-western values

- 4** = Compares, contrasts, or evaluates how the histories, philosophies, and/or religions of non-western cultures have shaped the development of their political, social, economic, and/or aesthetic values.
- 3** = Explains how the histories, philosophies, and/or religions of non-western cultures have shaped the development of their political, social, economic, and/or aesthetic values.
- 2** = Describes how the histories, philosophies, and/or religions of non-western cultures have shaped the development of their political, social, economic, and/or aesthetic values.
- 1** = Identifies how the histories, philosophies, and/or religions of non-western cultures have shaped the development of their political, social, economic, and/or aesthetic values.

D. Knowledge of similarities and differences in non-western and western cultures and civilizations

- 4** = Compares, contrasts, or evaluates points of similarity and difference between non-western and western world views, modes of thought and/or forms of social and cultural practices.

- 3 = Analyzes points of similarity and difference between non-western and western world views, modes of thought and/or forms of social and cultural practices.
- 2 = Describes points of similarity and difference between non-western and western world views, modes of thought and/or forms of social and cultural practices.
- 1 = Identifies points of similarity and difference between non-western and western world views, modes of thought and/or forms of social and cultural practices.

Standards

The standard of judgment is that 60 percent of the students will score 2 or higher on each outcome.

Suggested Assignment Guidelines

An appropriate assignment (e.g., essay, research paper, report, journal, portfolio, essay exam) would allow students to demonstrate content knowledge and critical skills by asking them to demonstrate at least three of the following:

- a. Knowledge of major characteristics/achievements of at least one non-western culture
- b. Knowledge of the historical context of those characteristics and achievements
- c. Knowledge of the humanistic foundations of non-western values
- d. Knowledge of the similarities and differences in non-western and western cultures and civilizations

Student work *best suited* for evaluation would require synthesis or evaluation of subject matter and provide opportunities for students to compare and contrast, analyze relationships, evaluate the strength and weaknesses of arguments, and describe implications. Essays, research papers, and essay tests often provide the best measure for these criteria. However, short answer test questions are acceptable if they address the basic category standard (at least three of the goals stated above).

World Civilizations

Competency Statements

1. Describe major social, religious, political, economic, scientific/technological, and aesthetic developments in the world's history from both global-comparative and culturally-specific perspectives
2. Demonstrate how change over time, contingency, and cause-and-effect relationships shape historical understanding
3. Examine how cross-cultural forces have influenced the evolution of the world's civilizations and explain how different cultures have responded to similar ideas, inventions, and institutions

Rubrics

The world civilizations outcome consists of three major outcomes, numbered 1 to 3. These major outcomes are each subdivided into several subpoints labeled by letters. Major outcome 1 is deemed to have been met when both subpoints have been demonstrated. For major outcome 2, students will need to demonstrate at least two of the three subpoints. Major outcome 3 will be met if at least one subpoint is demonstrated. A subpoint is demonstrated when at least once instance of the subpoint has occurred.

1: Knowledge of major social, religious, political, economic, scientific/ technological, and aesthetic developments

- a. Describes developments in a culturally-specific perspective
- b. Describes developments in a comparative or cross-cultural perspective

2: Knowledge of historical understanding

- a. Demonstrates knowledge of change over time in historical understanding
- b. Demonstrates knowledge of contingency in historical understanding
- c. Demonstrates knowledge of cause-and-effect relationships in historical understanding

3: Knowledge of cross-cultural influences in world history

- a. Demonstrates knowledge of how cross-cultural forces (e.g. warfare, trade, migration) have influenced the evolution of the world's civilizations
- b. Demonstrates knowledge of how different cultures have responded to similar ideas, inventions and institutions

Methods of Scoring

The following scoring method will measure the world civilization's outcome:

- 4** = All three major outcomes are demonstrated by the use of all subpoints for each major outcome.
- 3** = All three major outcomes are demonstrated.
- 2** = Two major outcomes are demonstrated.
- 1** = One major outcome is demonstrated.
- 0** = No major outcomes are demonstrated.

Standards

The standard of judgment is that 70 percent of the students will score 2 or higher on each outcome.

Suggested Assignment Guidelines

An appropriate assignment (e.g., essay, research paper, report, essay exam) would allow students to demonstrate historical skills in a global context by asking them to:

- a. Learn about major social, religious, political, economic, scientific/technological, and aesthetics in the world's history from both culturally-specific and cross-cultural perspectives
- b. Explore the role of change over time, contingency, and cause-and-effect relationships in shaping historical understanding.
- c. Examine how cross-cultural forces have shaped the evolution of the world's civilizations and to compare how different cultures have responded to similar ideas, inventions, and institutions.

Student work *best suited* for evaluation would require students to identify, describe, explain, and compare world historical developments within and across specific cultural and temporal settings. Essays, research papers, and essay tests often provide the best measure for these criteria. However, short answer test questions are acceptable if, taken together, they provide students ample opportunities to address all three major outcomes.

Humanities and Fine Arts

Competency Statements

1. Identify significant developments and achievements in the humanities and fine arts and place them in their historical context.
2. Explain the relationship between creative expression and human experience and recognize how this relationship has evolved over time.
3. Examine value and belief systems and explain their role in humanistic inquiry and expression.
4. Evaluate the meaning of significant events and creative works using forms of reasoning, analysis and exposition appropriate to the humanities and fine arts.

Rubrics

A. Knowledge of significant developments and achievements in the humanities and fine arts

- 4** = Compares, contrasts, or evaluates significant developments and achievements in the humanities or fine arts.
- 3** = Analyzes significant developments and/or achievements in the humanities or fine arts.
- 2** = Describes significant developments and/or achievements in the humanities or fine arts.
- 1** = Identifies significant developments and/or achievements in the humanities or fine arts.

B. Knowledge of historical context

- 4** = Compares, contrasts, or evaluates the relationship between creative “text” and historical “context.”
- 3** = Explains the relationship between creative “text” and historical “context.”
- 2** = Describes the historical context of great works in the western artistic, literary, musical, philosophical, and religious traditions.
- 1** = Identifies the historical context of significant developments and achievements in the humanities or fine arts.

C. Knowledge of value and belief systems

- 4** = Compares, contrasts, or evaluates major value or belief systems and their influence on humanistic inquiry and creative expression.
- 3** = Analyzes major value or belief systems and their influence on humanistic inquiry and creative expression.
- 2** = Describes major value or belief systems and their influence on humanistic inquiry and creative expression.
- 1** = Identifies major value or belief systems that influence humanistic inquiry and creative expression.

D. Knowledge of disciplinary methods in the humanities and fine arts

- 4** = Compares, contrasts, or evaluates the meaning of significant events and/or creative works using forms of reasoning, analysis, and exposition appropriate to the humanities and/or fine arts.
- 3** = Explains the meaning of significant events and/or creative works using forms of reasoning, analysis, and exposition appropriate to the humanities and/or fine arts.

- 2** = Describes the meaning of significant events and/or creative works using forms of reasoning, analysis, and exposition appropriate to the humanities and/or fine arts.
- 1** = Identifies modes of reasoning, analysis and exposition used to examine significant events and/or creative works in the humanities and fine arts.

Standards

The standard of judgment is that 60 percent of the students will score 2 or higher on each outcome.

Suggested Assignment Guidelines

An appropriate assignment (e.g., essay, research paper, report, journal, portfolio, essay exam) would allow students to demonstrate content knowledge and critical skills by asking them to demonstrate at least three of the following:

- a. Knowledge of significant developments and/or achievements in the humanities or fine arts
- b. Knowledge of the historical context of significant developments and/or achievements in the humanities or fine arts
- c. Knowledge of the role of value and belief systems in humanistic inquiry and creative expression.
- d. Knowledge of the forms of reasoning, analysis, and exposition used in the humanities and fine arts.

Student work *best suited* for evaluation would require synthesis or evaluation of subject matter and provide opportunities for students to compare and contrast, analyze relationships, evaluate the strength and weaknesses of arguments, and describe implications. Essays, research papers, and essay tests often provide the best measure for these criteria.

Mathematics and Statistics

Competency Statements

1. Employ quantitative concepts and methods to solve mathematical and statistical problems.
2. Construct and interpret mathematical and statistical models of real world and abstract phenomena.
3. Communicate mathematical/statistical knowledge using appropriate notation and vocabulary.
4. Recognize the limits of mathematical and statistical methods in evaluating human problems.

Rubrics

The mathematics outcomes consist of four major outcomes, numbered 1 to 4. Except for Number 4, these major outcomes are each subdivided into subpoints labeled by letters. The criteria for meeting each major outcome are provided after its description, below.

1: Employ quantitative concepts and methods to solve problems

(Outcome is demonstrated when at least one instance of two subpoints has occurred.)

- a) identify relevant data (numerical information or samples in mathematical and statistical contexts)
- b) select or develop models (organized representations of numerical information) appropriate to the problem, for instance, by arranging data into a table, creating pictorial representations (graphs or charts), or selecting or setting up an equation or formula
- c) obtain correct mathematical or statistical results from the data, using correct units and measures
- d) draw valid inferences from data and results

2: Construct and interpret mathematical and/or statistical models

(Outcome is demonstrated when at least one instance of both subpoints has occurred.)

- a) can employ mathematical and/or statistical concepts to describe real world phenomena
- b) can employ mathematical and/or statistical concepts to describe abstract phenomena

3: Communicate mathematical and/or statistical knowledge

(Outcome is demonstrated when at least one instance of subpoint in a-c and one subpoint in d-e has occurred.)

- a) arrange data into a table or spreadsheet
- b) create pictorial representations (e.g., bar graphs, pie charts, coordinate graphs) with or without technological assistance
- c) select or set up an equation or formula
- d) describe in “regular English” trends in a chart or graph, features of an equation or formula, features of data presented in a table or spreadsheet
- e) explain in “regular English” predictions based on data in a chart, graph, table, formula, or equation, or conclusions based on the quantitative results from mathematical or statistical operations.

4: Limits of mathematical/statistical methods in evaluating human problems.

- Understand (by describing, discussing, or explaining) how mathematical or statistical methods can only imperfectly be used to describe, analyze or predict human behavior

(intended here are attention to such issues as sampling and sampling errors, the nature of proof, and the use of “rational models” to investigate “irrational” behavior).

Methods of Scoring

The following method of scoring will measure the mathematics outcomes:

- 5 = All four major outcomes are demonstrated, and outcomes 1 and 3 demonstrated with more than the minimum number of subpoints.
- 4 = All four major outcomes are demonstrated.
- 3 = Three major outcomes are demonstrated.
- 2 = Two major outcomes are demonstrated.
- 1 = One major outcome is demonstrated.
- 0 = No major outcomes are demonstrated.

Standards

The standard of judgment is that 70 percent of the students will obtain a score of 3 or more.

Suggested Assignment Guidelines

An appropriate assignment (e.g., problem set, exam, quiz, project) would allow students to demonstrate mathematical or statistical skills by asking them to:

- a. work with extraneous data, word problems, or applications in both abstract and real-world settings
- b. create tables, graphs, or diagrams, or select and use equations or formulas
- c. obtain several mathematical and/or statistical results;
- d. draw qualitative conclusions from their work

Student work *best suited* for evaluation would require students to identify relevant numeral information in some context (in statistics classes, this would include use of sampling), organize their information through the use of mathematical models, obtain several numerical results (five or more), and draw some qualitative conclusions from their results. Submissions should require students to demonstrate all four of these outcomes, but each problem in a submission need not address each objective. Multi-step problems or projects can also work well. Submissions with qualitative conclusions about results can often be obtained by asking students to think about (and explain in writing) the implications of a numeral or statistical result.

Natural Sciences

Competency Statements

1. Identify and apply the theories and methods scientists use to explore natural phenomena.
2. Recognize and place in historical context the achievements of the human mind in comprehending the natural/physical world and the universe.
3. Explain how creativity and logical reasoning influence the development of scientific knowledge.
4. Describe the strengths and limitations of empirical approaches to understanding and influencing the natural world.
5. Discuss how scientific and technological developments have both benefited and created significant concerns for human society.

Rubrics

A. Demonstrates disciplinary knowledge in the natural and physical sciences

4 = Compares, contrasts, or evaluates theories and methods scientists use to explore natural phenomena.

3 = Applies theories and methods scientists use to explore natural phenomena.

2 = Describes theories and methods scientists use to explore natural phenomena

1 = Identifies theories and methods scientists use to explore natural phenomena.

B. Demonstrates knowledge of the historical context of scientific achievement

4 = Compares, contrasts or evaluates the historical context of humankind's achievements in comprehending the natural/physical world and the universe.

3 = Explains the historical context of humankind's achievements in comprehending the natural/physical world and the universe.

2 = Discusses the historical context of humankind's achievements in comprehending the natural/physical world and the universe.

1 = Identifies the historical context of humankind's achievements in comprehending the natural/physical world and the universe.

C. Demonstrates knowledge of the role of creativity and logical reasoning in scientific discovery

4 = Compares, contrasts, or evaluates how creativity and/or logical reasoning have influenced the development of scientific knowledge.

3 = Explains how creativity and/or logical reasoning have influenced the development of scientific knowledge.

2 = Describes how creativity and/or logical reasoning have influenced the development of scientific knowledge.

1 = Identifies how creativity and/or logical reasoning have influenced the development of scientific knowledge.

D. Demonstrates knowledge of the strengths and limitations of empirical approaches to understanding and influencing the natural world

- 4 = Compares, contrasts, or evaluates strengths and limitations of empirical approaches to understanding and/or influencing the natural world.
- 3 = Explains strengths and limitations of empirical approaches to understanding and/or influencing the natural world.
- 2 = Describes strengths and limitations of empirical approaches to understanding and/or influencing the natural world.
- 1 = Identifies strengths and limitations of empirical approaches to understanding and/or influencing the natural world.

E. Demonstrates knowledge of the impact of scientific and technological development on human society

- 4 = Compares, contrasts, or evaluates how scientific and technological developments have both benefited and raised concerns for human society.
- 3 = Explains how scientific and technological developments have both benefited and raised concerns for human society.
- 2 = Describes ways in which scientific and technological developments have both benefited and raised concerns for human society.
- 1 = Identifies ways in which scientific and technological developments have both benefited and raised concerns for human society.

Standards

The standard of judgment is that 60 percent of the students will score 2 or higher on each outcome.

Suggested Assignment Guidelines

An appropriate assignment (e.g., problem set, research paper, report, lab report, essay exam) would allow students to demonstrate content knowledge and critical skills by asking them to demonstrate at least three of the following:

- a. Knowledge of the theories and methods in the natural and/or physical sciences
- b. Knowledge of the historical context of scientific achievement
- c. Knowledge of the role of creativity and logical reasoning in scientific discovery
- d. Knowledge of the strengths and limitations of empirical approaches to understanding and influencing the natural world.
- e. Knowledge of the impact of scientific and technological development on human society

Student work *best suited* for evaluation would require synthesis or evaluation of subject matter and provide opportunities for students to compare and contrast, analyze relationships, evaluate the strength and weaknesses of arguments, and describe both the context and implications of scientific discovery. Submissions that require students to demonstrate all five rubrics are best, but each problem in a submission (if a problem set or exam is selected) need not address each rubric. Multi-step problems or projects can also work well.

Rhetoric and Composition

Competency Statements

1. Recognize that writing always takes place within specific rhetorical situations.
2. Compose and revise texts for a variety of purposes and audiences, employing standard documentation styles and Standard American English.
3. Conduct research, summarize and evaluate ideas, develop arguments, and organize supporting details.
4. Read accurately and critically, recognizing assumptions, implied statements, and differences between fact and opinion.

Rubrics

- 6** = Submission demonstrates excellent composition skills including: a clear and insightful purpose, appropriate and effective organization, lively and convincing supporting materials, effective diction and sentence skills, and perfect or near perfect mechanics (including spelling and punctuation). The writing admirably accomplishes all of the assignment's objectives. It also gives evidence of skill in reading accurately and critically as well as summarizing and evaluating ideas.
- 5** = Submission exhibits strong composition skills, including a clear and interesting purpose, although development, diction, and sentence style may have weaknesses. Shows careful and acceptable use of mechanics, but organization and the use of supporting materials (e.g., citation styles may be uneven. The writing effectively accomplishes all of the assignment's main goals and conveys a clear sense that the student can read accurately and critically as well as summarize and evaluate ideas..
- 4** = Submission provides evidence of above average composition skills. Its purpose is clear and interesting, although development and organization may be insufficient in many places. Diction and style may also not be consistently clear and effective. It employs mechanics and appropriate supporting materials competently, but not always consistently. Accomplishes most of the assignment's main goals and reveals the student's general ability to read accurately and summarize ideas effectively.
- 3** = Submission exhibits average composition skills. It states a purpose, but it may be unclear or interesting. It is structured, with adequate development and organization, but the development of ideas may be trite, assumptions may be unsupported or illogical in more than one area, and the diction may not always be clear and effective. Accomplishes many, but not all of the assignment's goals. Exhibits shortcomings in the student's ability to read accurately and summarize ideas.
- 2** = The composition demonstrates major flaws at the level of clarity of purpose, development, and/or organization. Problems with diction, syntax, and mechanics seriously affect clarity. Accomplishes few of the assignment's goals, and reveals notable weaknesses in the student's ability to read accurately and summarize ideas.
- 1** = Compositional skills may be substandard in two or more areas. Diction, syntax, and mechanics are excessively flawed. Fails to accomplish the main goals of the assignment.

Standards

The standard of judgment is that 60 percent of the students will score at least 3 or higher.

Suggested Assignment Guidelines

An appropriate assignment (e.g., paper, report, portfolio) would allow students to demonstrate compositional skills by asking them to:

- a. conduct research, summarize and evaluate ideas, and read accurately and critically
- b. write with a clear sense of purpose and/or argument
- c. develop main points with appropriate and convincing supporting materials (evidence and logical arguments)
- d. utilize appropriate and effective organization of ideas
- e. demonstrate a clear and coherent writing style that uses effective diction, sentence, and (as necessary) citation skills
- f. demonstrate correct mechanical skills including spelling and punctuation

Student work *best suited* for evaluation would require a clear central point and its development using appropriate supporting materials. It should require organization of ideas and the demonstration of good writing skills. Appropriate assignments could range from a single-page essay, to a multi-paged research paper, to a mini-portfolio. Length of the written work is not the most important factor, but the submission will need to be more than a short answer or listing response to a test or assignment question. Should a mini-portfolio be used as the submission, it would not be essential that each portfolio element demonstrate all of the skill listed in a-f above.