

GENERAL EDUCATION MAJOR PREPARATION FOR SCIENCE AND ENGINEERING

The grid on the next page represents initial suggestions by discipline faculty for an alternative to IGETC. For those of you not familiar with IGETC, perhaps the following comments will be of help. IGETC is the Intersegmental General Education Transfer Curriculum. It sets forth a course of study that, if completed, allows a student to transfer from a CC to most CSUs and UCs with the assurance that their lower division general education work will be accepted as equivalent to GE requirements at the receiving institution. Thus, transfer students do not have to take additional lower division GE courses to meet the specific requirements of the receiving institution.

IGETC has been very beneficial to most transfer students but is a serious problem for science students. Prospective science students entering community college are often not certain which four-year institution they wish to attend; they often are considering several alternative choices. Faced with the varied requirements at their prospective choices, they often opt for the one sure choice provided by the counseling staff: IGETC. Two problems accrue from this choice. First, the minimum requirements set forth in IGETC for math and sciences often meet none of the requirements for a typical science discipline. For instance, liberal arts math meets the GE requirements for most non-science majors but no science major. Thus, science students who follow IGETC transfer with math and science training that is inconsistent with major discipline requirements. They must then complete the proper math and science requirements at the receiving institution. The result is a delay in their completion of major discipline courses that have as prerequisites the math and science course they did not take prior to transfer.

Students who opt for the correct math and science requirements face a different dilemma. If they choose not to complete IGETC they must then meet the GE requirements at the institution to which they transfer. This alternative often means the student must then complete a number of additional GE courses to satisfy the graduation requirements, hence delaying graduation. Students who choose appropriate math and science courses and complete IGETC, generally take >70 units over a three year period prior to transfer.

The proposed alternative to IGETC for science majors will solve most of these problems for biology students in the following manner:

1. It will set the minimum math and science requirements to correlate with the requirements of the biology major, thus directing biology students into courses that fulfill their major requirements.
2. It will reduce the number of GE courses in Area 2 of IGETC (Arts, Humanities, Social and Behavioral Sciences) by 2, allowing the units to be used toward completion of the biology major requirements.
3. It will guarantee that biology transfer students only need to complete 2 additional lower-division GE courses after transfer, instead of meeting all of the lower-division GE requirements of the institution to which they eventually transfer.

In the following grid, the minimal math and science requirements have been set at a relatively high level. For instance, the math requirement is set at one year of calculus, and the physics requirement is set at one year of calculus-based physics. These requirements exceed those required at many institutions. One possible solution is to list the minimum to be consistent with the majority of biology curricula, and then add a separate column or sheet of footnotes to make students aware that some universities require additional preparation. For instance, set the physics requirement as the second semester of algebra-based physics, but with a footnote stating that many institutions require a year of calculus-based physics. Development of a viable alternative to IGETC would greatly benefit biology majors. Please send your suggestions or comments to Chris Riegle at criegle@ivc.edu.

DISCUSSION DRAFT: GENERAL EDUCATION MAJOR PREPARATION FOR SCIENCE AND ENGINEERING

MAJORS	Area 3 Math		Area 4 Chemistry		Area 5 Physics		Area 6 Further Science Requirements		UNITS (Semesters)	UNITS (Quarters)	TOTAL UNITS UC CSU		
	Units*		Units*		Units*		Units*		S	Q			
	S	Q	S	Q	S	Q	S	Q					
AREA 1 - ENGLISH COMMUNICATION Three courses required: one in English composition, one in critical thinking-English composition, and one in oral communication (Oral communication required for CSU only)									6 to 9	9 to 12			
AREA 2- GENERAL EDUCATION COURSES IN ARTS, HUMANITIES, AND SOCIAL/BEHAVIORAL SCIENCES Three (UC) or Four (CSU) courses required (minimum of 12 units) with no more than 2 from each of the following areas: <ul style="list-style-type: none"> ▶ Arts and Humanities ▶ Social and Behavior Sciences 									9 to 12	12 to 16			
BIOLOGY	MATH SEQ B	10	15	CHEM SEQ A	10	15	PHY SEQ B Or Organic Chem	10	8	15	12	60-65	40-43
CHEMISTRY	MATH SEQ B + MATH 24 & 26			CHEM SEQ A + Organic			PHY SEQ B						
COMPUTER SCIENCE													
EARTH SCIENCE/ GEOLOGY	MATH SEQ B	10	15	CHEM SEQ A	10	15	PHY SEQ A or B	10		15	12	53	59
ENGINEERING	MATH SEQ B + MATH 24	15	22.5	CHEM 1	4	6	PHY SEQ B					62	68
MATHEMATICS													
PHYSICS	MATH SEQ B + MATH 24 & 26			CHEM SEQ A			PHY SEQ C						

S = Semesters
Q = Quarters