

Initial Approval of Specialty Program

Recommendations from Review Panel Regarding Programs to Prepare Teachers of Integrated Science: Secondary (DI)

January 24, 2006

Institution: Central Michigan University				
Program Level	Comprehensive Group Major (# Credits)	Group Major (# Credits)	Group Minor (# Credits)	Endorsement Only (# Credits)
Elementary				
Secondary	53	36-45		
K-12				
Source of Standards/Guidelines: Michigan State Board of Education			Pub. Date: Aug. 8, 2002	
Program Assessment Summary/Recommendation				
Meets all standards and requirements	X	Not all standards and requirements are met	X	Insufficient documentation for program review
Approval	X	Approval Pending	Approval Suspended	
<p>Standards/Requirements Not Met:</p> <p>Reviewers are concerned with the following statement in the program summary. <i>“Although all students must take the required core of courses and are encouraged to gain a broad base of knowledge in all sciences, there is some latitude in this program of study for the substitution of equivalent or more advance coursework based upon the student’s background. The Learner Centered focus is continued in several courses as students make choices in the assignments they complete and the way in which they fulfill course requirements.”</i> How does the institution ensure all standards will be met if teacher candidates substitute courses or alter course expectations that may or may not meet standards cited by original course? For example, course A may be required and cited several times throughout the matrix. If a teacher candidate substitutes course B for course A, how will the standards citing course A be met.</p> <p><i>Standard 1.7.3 atmosphere, weather, climate</i> is not met for teacher candidates pursuing a group major with an embedded earth science minor. The only course cited for this standard is ESC 201 <i>Weather</i>. ESC 201 is one of two possible course selections for an integrated science group major/earth science minor candidate. Please confirm how the institution meets this standard for integrated science group major/earth science minor candidates if ESC 201 is not taken.</p> <p><i>Standard 1.7.4 astronomy</i> is not met for teacher candidates pursuing a group major with an embedded earth science minor. The only course cited for this standard is AST 111 <i>Astronomy</i>. AST 111, along with AST 112, is one of two possible course selections for an integrated science group major/earth science minor candidate. Please confirm how the institution meets this standard for integrated science group major/earth science minor candidates if AST 111 is not taken.</p> <p>Several standards citing only CHM 131 <i>Introduction to Chemistry I</i> and/or CHM 132 <i>Introduction to Chemistry II</i> are not met for teacher candidates pursuing a group major with an embedded chemistry minor. CHM 131 and CHM 132, together, are one of two possible selections for an integrated science</p>				

group major/chemistry minor. For example, standard 1.8.1.2 *stoichiometry* cites CHM 131 and CHM 132, but an integrated science group major/chemistry minor could choose CHM 161 *Principles of Chemistry* according to the Program Summary, section G, integrated science major summary instead of CHM 131 and CHM 132. Please confirm how the institution meets these eight or so standards citing **only** CHM 131 and/or CHM 132 for integrated science group major/chemistry minor candidates if CHM 131 and/or CHM 132 are not taken.

Standards 1.8.3 Physics (1.8.3.1-1.8.3.5) are not met. Courses cited in these standards PHY 130 *College Physics I*, PHY 131 *College Physics II*, PHY 170 *college Physics Laboratory II*, and PHY 171 *College Physics Laboratory II* are not required for teacher candidates pursuing a group major with an embedded physics minor according to the Program Summary, section G, integrated science major summary. Please confirm how the institution meets these standards for integrated science group major/physics minor candidates.

Standard 6.0 - safe science classroom is not met. Reviewers could find little evidence of the understanding and promotion of safe science classrooms in any syllabi except SCI 400 *Integrated Science in Secondary School*, and, then, no reference was made to Council of State Science Supervisors. Please include direct references to the safe standards as identified by the Council of State Science Supervisors in matrix and syllabi for cited courses. The secondary safety guide, checklist, and recommendations can be accessed at <http://www.csss-science.org/safety.shtml>.

Additional information needed/action to be taken:

Please include faculty information for BIO 105 *Introductory Quantitative Biology* on the instructional faculty form.

Please resubmit Form XX including courses required in the different alignments available for group majors with embedded minors.

Provide syllabi for new courses provided in Form XX and when cited in standards/guideline matrix.

Please include faculty information for additional required courses for group majors with an embedded minor on the instructional faculty form.

Please specify and clarify how teacher candidates **are prepared** to utilize a variety of instructional approaches to address the various learning styles of students in the program summary portion of the application. The program summary includes one method of preparing students. "*Students experience a variety of instructional approaches throughout their career at CMU.*" Also, the program summary states that courses "*require students to apply their knowledge of different learning styles as they design lesson plans to accommodate various learning styles.*" This does not explain how candidates gain their knowledge of different learning styles and instructional approaches.

Comments:

Several times throughout matrix the institution cites "all courses." For example, standard 1.8.2.6 *heterocyclic compounds* states "heterocyclic compound discussed in all biology classes." Reviewers suggest identifying specific course names and numbers in future reviews rather than "all courses."

In future reviews, please add the specialty area for all faculty members listed on the instructional faculty form.

Reviewers compliment:

- The high percentage of science faculty involved in P-12 Collaborative work (over 75%).
- The comprehensive philosophy, rationale, and objectives included in the program summary.
- The 36-45 plus semester hours required for a secondary integrated science group major with required linkage to one of four single science discipline minors programs which exceed minimum state semester hour requirements.

The institution is encouraged to begin collecting outcome data related to the **Integrated Science: Secondary** standards because outcome data will be the basis of subsequent periodic reviews.