

**Periodic Review/Program Evaluation**

**Recommendations from Review Panel Regarding Programs  
to Prepare Teachers of Chemistry (DC)**

January 18, 2007

| <b>Institution: Central Michigan University</b>  |                   |  |                         |   |                              |
|--|-------------------|--|-------------------------|---|------------------------------|
| Program Level  | Major (# Credits) | Minor (# Credits)                            | Group Major (# Credits) | Group Minor (# Credits)                         | Endorsement Only (# Credits) |
| Elementary   |                   |  |                         |   |                              |
| Secondary  | ? 41-47           | ? 23-27                                      |                         |   |                              |
| K-12   |                   |  |                         |   |                              |
| <b>Source of Standards/Guidelines:</b><br>Michigan State Board of Education  |                   |  |                         | <b>Pub. Date:</b><br>August 8, 2002             |                              |
| <b>Program Assessment Summary/Recommendation</b>   |                   |  |                         |   |                              |
| 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><b>Standards/requirements not met:</b></p> <p>Identify course work that covers sets of standards in the minor program:</p> <ul style="list-style-type: none"> <li>• <i>Standard 1.3.1 chemical thermodynamics through Standard 1.3.9 quantum mechanics</i></li> <li>• <i>Standard 1.4.1 biomolecules . . . through Standard 1.4.9 biosynthesis/biodegradations pathway</i></li> </ul> <p><i>Standard 4.0 . . . design and conduct inquiry-based open-ended investigations in chemistry . . .</i><br/>Provide additional narrative and documentation explaining how this standard is covered for candidates in the minor program.</p> <p><i>Standard 6.0 . . . as identified by the Council of State Science Supervisors . . .</i> Provide additional documentation of candidates' experience with and use of Council of State Science Supervisors' science classroom safety resources: <a href="http://www.csss-science.org/safety.shtml">http://www.csss-science.org/safety.shtml</a>.</p> |                   |  |                         |   |                              |
| <p><b>Additional information needed/action to be taken:</b></p> <p>Provide an updated Form XX to report fully the range of semester hour requirements in each program option. For example, accounting for required-elective choice of CHM 131 and either CHM 132 or CHM 161, adjusting for the possibility of Independent Study between 1 to 3 semester hours (as stated in Program Summary), and adding unspecified electives, may produce programs that differ from the current Form XX statement of 40 and 23 semester hours in the major and minor programs, respectively.</p>   |                   |  |                         |   |                              |

**Comments:**

Both program options exceed minimum teacher certification rules, which are 30 semester hours and 20 semester hours for major and minor programs, respectively.

The institution is complimented for currently using two independent, objective assessments to ensure candidate subject knowledge, i.e., MTTC and High School Chemistry exam provided by the American Chemical Society.

The institution is complimented for the content and faculty provided in CHM 505.

The institution is encouraged to continue to find ways to provide chemistry-related field experiences for candidates in the minor program, by perhaps requiring CHM 507.

The institution is encouraged to provide incentives and opportunities for chemistry faculty to increase its knowledge of Michigan Curriculum Framework (MCF) and its involvement with P-12 collaboration; currently, 4 of 16 report familiarity with MCF and 7 of 16 report P-12 collaboration.

For subsequent periodic reviews include the chemistry specialty in which instructional faculty earned the terminal degree.

The institution should begin collecting program performance outcome data related to the Chemistry standards as an analysis of outcome data will be the basis of subsequent periodic program review.