

**TOPIC: CREDIT HOUR WAIVERS FOR MATH AND SCIENCE
TEACHER PREPARATION PROGRAMS**

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I. SUMMARY

This “preliminary briefing” is intended to initiate and inform a discussion with the Commission in advance of an actual decision or action item. It concerns credit waivers for science and math teacher preparation programs. Teacher preparation programs are currently capped at 126 credits, except for several individual programs that have received further credit waivers. The current cap of 126 credits is insufficient to prepare well-trained science and math teachers. It may be in the best interest of the state to grant a credit waiver to permit 138 credits for science and math teacher preparation programs. Staff continues to collect data from the affected institutions and expects to present an action item to the Commission at a future date.

II. BACKGROUND

C.R.S. 23-1-125(a), the Student Bill of Rights, states

Students should be able to complete their... baccalaureate programs in no more than one hundred twenty credit hours unless there are additional degree requirements recognized by the commission.

The Commission has previously granted credit waivers for teacher preparation programs, engineering and the Colorado School Mines (CCHE decisions on April 1, 2004 and June 2, 2005). Engineering programs are exempt because they cannot get national accreditation with a 120 credit hour limit. Teacher preparation programs were granted a waiver for 126 credits because it is difficult to prepare teachers in content knowledge and pedagogical skills (literacy, supporting English language learners and differentiating instruction, for example) and stay within 120 credit hours, though some teacher preparation programs are able to do so.

Several teacher preparation programs have been granted credit waivers to exceed 126 credit hours. For instance, Colorado State University’s secondary technology teacher preparation program results in a Bachelor’s of Science in Engineering Science and a teaching endorsement with 137 to 139 credits. CU-Boulder’s secondary chemistry teacher major was approved in 2004 at 132 credits. The Commission can continue to grant waivers on an individual basis. However, staff wishes to raise the proposition that an “across the board” waiver for science and math teacher preparation programs may serve teacher preparation programs and teacher candidates better.

III. CHALLENGES CREATED BY THE CREDIT CAP AND LICENSING

Institutions face two main challenges in preparing high school math and science teachers. The first challenge is that high school teachers need deep content knowledge, especially when they are asked to teach Advanced Placement, International Baccalaureate and Honors courses, which are college-level courses. Deep and rigorous content knowledge should include laboratory experiences and should not be significantly different in content from that of other science majors in preparation for careers in science. It is preferable not to have a second-tier teacher track in the sciences – the effect in many instances of the current cap of 126 credits. But it is impossible to fit adequate content coursework *and* teacher preparation coursework into 126 credits. The depth of content knowledge in science majors and the number of lab-based courses drives credit hours up, especially with teacher preparation essentially a second major.

The cap of 126 credits also prevents teacher education candidates from majoring in a math or science degree offered through a College of Engineering. The inability to graduate with a bachelor's degree in engineering or a specific science discipline (at some institutions) acts as a deterrent to prospective science teachers because they will not have a useful science degree if they later leave the field of teaching. For example, a Bachelor's of General Science or General Math offers fewer opportunities for employment or graduate school than a Bachelor's of Physics or Applied Math.

The second challenge is that Colorado only licenses secondary science teachers as generalists. That is, the state's current licensing of science teachers requires them to be able to teach all four science content areas: earth science/astronomy/environmental studies, biology, chemistry, and physics. Again, it is impossible to fit the necessary coursework into 126 credit hours. The result is that high school science teachers enjoy some *breadth* of education and competency, but lack *depth*. Thus, at its April 1, 2004 meeting, the Commission granted a credit waiver for teacher preparation programs, allowing up to 126 credits provided the program requirements still can be completed within four years. The extra six credits helped alleviate some of the breadth versus depth problem, but not enough to accommodate some science and math majors.

IV. DEPARTMENT OF HIGHER EDUCATION CONSIDERATION

The Commission should consider whether it is in the best interest of the state to grant a credit waiver of up to 138 credits for the preparation of high school science and math teachers and whether nevertheless some science and math teacher preparation programs should remain capped at 126 credits to fulfill the spirit of the Student Bill of Rights. The effect should be better-trained science and math teachers and more candidates going into math and the sciences because they are able to obtain Bachelor's degrees in specific disciplines. This would also give teacher preparation programs more opportunities to review and update programs without the hassle of negotiating credit hours with the science, math and engineering departments.

The department should continue to work with the Department of Education to address how the state licenses science teachers. At least two types of secondary science licenses are required to meet the needs of the state: (1) a Secondary Science Generalist (how the state currently trains and licenses all science teachers) which meets the needs of districts (especially in rural areas) that need science teachers who can teach across all four science content areas; and (2) a Secondary Science Specialist (so those going into secondary science teaching might major in one content area, e.g., physics) which would meet the need of districts that require science teachers with more depth in a specific content area and would attract potential science teachers who want to major in a science or engineering field.

V. COLLEGE OPPORTUNITY FUND (COF) CONSIDERATIONS

All of the proposed programs discussed above meet the requirements of the College Opportunity Fund (COF). C.R.S. § 23-18-202(5):

(c) (I) An eligible undergraduate student shall not receive a stipend from the college opportunity fund for more than one hundred forty-five credit hours during the eligible undergraduate student's lifetime; except that:

(A) If an eligible undergraduate student has received stipend payments for one hundred forty-five credit hours and the student has received a bachelor's degree, the eligible undergraduate student is eligible to receive stipend payments for an additional thirty undergraduate credit hours.

(e) Notwithstanding the lifetime-credit-hour limitation established pursuant to paragraph (c) of this subsection (5), an eligible undergraduate student may apply to the commission for a waiver of the limitation. The commission may grant a waiver of the lifetime-credit-hour limitation...

VI. STAFF RECOMMENDATION

This item is a preliminary briefing; no formal action is required by the Commission. Staff solicits advice from the Commission in order to prepare (or not) a recommended action for the Commission to consider at a later date.

VI. STATUTORY AUTHORITY

23-1-125 C.R.S.
23-18-202 C.R.S.