

# **The University Senate of Michigan Technological University**

## **Proposal 12-15**

(Voting Units: Academic)

### **“Degree Name Change from**

**Bachelor of Science Degree in Geology – Earth Science Education**

**To**

**Bachelor of Science Degree in Geology – Earth and Space Science and Integrated  
Science”**

**Submitted by:**

**Department of Geological and Mining Engineering and Sciences**

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This proposal for a change in the name of a degree program follows the guidelines proposed to the University Senate in Proposal 38-04 which was approved in 2004 and became Senate Policy 108.1.1.

#### **1. General description and characteristics of program.**

The Bachelor of Science Degree in Geology – Earth Science Education Option has been available to students since 1997. It was proposed to the Senate through Senate Proposal 17-97 and was approved in August of that year. Since it was originally approved, 22 students have received their degrees<sup>1</sup>. This program is one of the 16 in the state of Michigan that are approved by the Michigan Department of Education as a pathway to Certification for secondary-level teachers with endorsement in the area of Earth and Space Science<sup>2</sup>.

During 2013-14, as part of the normal curriculum binder process, the requirements for the Bachelor of Science Degree in Geology – Earth Science Education were updated to ensure

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<sup>1</sup> Data from Michigan Tech Institutional Analysis.

<sup>2</sup> See [https://mdoe.state.mi.us/proprep/ProgramInfo.asp?Program\\_ID=18](https://mdoe.state.mi.us/proprep/ProgramInfo.asp?Program_ID=18) for a complete list of the Earth and Space Science teacher education programs approved by the state of Michigan.

that they would continue to meet the requirements of the Michigan Department of Education. As part of this process, it was determined that the revised requirements for the Earth Science teacher education program satisfied the requirements for Integrated Science teacher education. Thus, the Bachelor of Science Degree in Geology – Earth Science Education is now essentially a coupled “teaching major/minor” program. Students who complete this degree are eligible to apply for certification and endorsement in the State of Michigan in the areas of Earth and Space Science *and* Integrated Science.

The request being made in this proposal for a change in name of the program reflects the fact that the degree now prepares teacher-candidates in both Earth and Space Science *and* Integrated Science.

## **2. Rationale.**

Integrated science teachers are highly sought in Michigan and elsewhere. Integrated science teachers are legally qualified to teach all the disciplines of science (biology, chemistry, earth and space science, and physics). This makes them attractive to small, rural schools and schools that have high turnover rates among teachers. The districts that hire integrated science teachers can be confident that they have the workforce needed to staff their science classrooms on an ongoing basis even as the needs/interests of students and overall enrollment in schools and districts changes through time.

In contrast, teachers with the Earth and Space Science certification are not highly sought unless they also possess an additional science certification because Earth and Space Science is not offered at all schools. Schools who are understaffed or under-resourced in science give preference to offering biology, chemistry, and physics because the Michigan graduation requirements state: “Three credits in science, with the use of labs, including biology and chemistry or physics.”<sup>3</sup> Because Earth and Space Science is not explicitly mentioned, it is not always given preference, *despite the fact that Earth and Space Science can satisfy the state’s requirement for three credits in science with the use of labs.*

The name change proposed here will make it clear to prospective teachers that they will be earning a degree that will make them highly employable. This will allow the program to attract prospective teachers who are particularly interested in the subject of Earth and Space Science but who are also pragmatic about their future prospects for employment. The Department of Geological and Mining Engineering is interested to continue to work with pre-service teachers because having qualified teachers in Michigan classrooms, particularly those who received a degree from Michigan Tech, will help to prepare and recruit future Michigan Tech students.

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<sup>3</sup> See [http://www.michigan.gov/documents/mde/michigan\\_merit\\_curriculum\\_370135\\_7.pdf](http://www.michigan.gov/documents/mde/michigan_merit_curriculum_370135_7.pdf) for more information.

**3. Discussion of related programs within the institution and at other institutions.**

Western Michigan University<sup>4</sup> has recently updated their Earth and Space Science curriculum so that it prepares pre-service teachers for certification and endorsement in both Earth and Space Science and Integrated Science.

**4. Curriculum design (refer to format of degree audit form).**

The current degree audit form (2014-2015 version) is attached to this proposal as Appendix A. No changes are to be made to the degree audit form other than the change of name of the program.

**5. New course descriptions.** (New Course Add Forms are needed for each course and will be processed upon final approval of program.)

None. All courses currently exist. This proposal is for a change of name only.

**6. Additional resources required.** (Additional information may be requested by the Senate Finance Committee.)

None. This proposal is for a change of name only. No new courses will be added.

**7. Accreditation requirements.**

As for all other teacher-education programs at Michigan Tech, this program will be subject to ongoing review and accreditation by the Michigan Department of Education and an accreditation authority. The university is currently accredited by TEAC (Teacher Education Accreditation Council) and accreditation is valid until February, 2019. TEAC merged with NCATE (National Council for Accreditation of Teacher Education) in 2013 and the resultant new accreditation authority known as CAEP (Council for the Accreditation of Educator Preparation) will guide future reviews and accreditation-related activities for this and other teacher-education programs at Michigan Tech.

**8. Planned implementation date.**

Fall semester, 2015.

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<sup>4</sup> See <http://wmich.edu/sites/default/files/attachments/u81/2013/CAS14-55.pdf> .

History:

September 4, 2014: Proposal submitted to Department of Geological and Mining Engineering and Sciences

October 2, 2014: Proposal approved by Department.

October 2, 2014: Proposal submitted to College of Engineering.

October 6, 2014: Proposal revised.

October 7, 2014: Proposal approved by College of Engineering Council.

October 7, 2014: Proposal submitted to Provost.

October 22, 2014: Proposal approved by Dean's Council and Provost.

October 22, 2014: Proposal submitted to University Senate.

October 29, 2014: Name of new program modified in accordance with recommendation from the University Senate Curriculum Committee.



### General Education Requirements

Course Number	Credits 24	Course Status Code M, R, P, WVD, SUB*
UN 1015	3	
UN 1025*	3	
HUFA – 3 credits FA2330, FA2520, FA2720, FA2820, HU2130, HU2501, HU2538, HU2700, HU2820, HU2910		
	3	
SBS – 3 credits EC2001, PSY2000, SS2100, SS2200, SS2400, SS2500, SS2501, SS2502, SS2503, SS2504, SS2505, SS2600, SS2700		
	3	
<b>HASS Distribution Courses: 12 total credits required. Six credits must be at the 3000- or 4000-level.</b>		
<ul style="list-style-type: none"> <li>■ No more than 3 credits from the HASS Creative Endeavors List may be used to satisfy the HASS Distribution List requirements.</li> <li>■ No more than 3 credits from the HASS Supplemental List may be used to satisfy the HASS Distribution List requirements.</li> </ul>		
	3	
	3	
	3	
	3	
<b>Credits Subtotal</b>		
*A 3000-level or higher modern language course may be used in place of UN1025, Global Issues.		

### Co-Curricular Activities

	.5	
	.5	
	.5	
	.5	
	.5	
	.5	
Required for graduation, but not included in the calculation of the GPA, or in the overall credits required for the degree.		

### Free Electives

Course Number	Credits Variable (0-1)	Course Status Code M, R, P, WVD, SUB*
Free elective credits are usually fulfilled by the required Secondary Teaching Certification Minor credits. The amount will vary depending on the minor selected and the minor credits being used in other areas of this degree audit.		
Selected Minor: _____		
(You must complete a Teaching Certification Minor Audit form available through the Department of Cognitive and Learning Sciences.)		
<b>Credits Subtotal</b>		

### For Advisor Use Only

<b>Total Credits Required:</b> Total credits for this degree will vary based on the state teaching certification minor selected. Minimum credits required are 135.	<b>128</b>
<b>Total Credits Completed:</b>	
<b>Total Credits Needed:</b>	