The Importance of Concurrent and Dual Credit Enrollment to the Geosciences

Position Statement:

Members of the National Association of Geoscience Teachers and National Earth Science Teachers Association advocate for strong collaborations between high schools and postsecondary institutions around concurrent and dual credit enrollment Earth and Space Science courses.

Rationale:

Offering rigorous higher education Earth and Space Science courses to motivated high school students addresses critical needs in both geoscience education and future workforce demands. Members of the National Association of Geoscience Teachers (NAGT) and National Earth Science Teachers Association (NESTA) advocate to continue or establish strong collaborations between high schools and postsecondary institutions around concurrent and dual credit enrollment in Earth and Space Science courses.

As of the passage of this statement, the Next Generation Science Standards (NGSS; https://www.nextgenscience.org/) have been adopted by twenty states and an additional twenty-four states have revised their science standards based upon NGSS Frameworks. Such changes bring Earth and Space Sciences more formally into K-12 curricula, including more deliberate and authentic exposure to the Earth and Space Sciences prior to bridging with post-secondary education, with the anticipation that more high school students will consider geoscience careers. Design, implementation, and advocacy of high-quality concurrent enrollment and dual credit courses to attract motivated secondary students to the geoscience workforce should meet the rigors and spirit of NGSS Frameworks. Doing so will expand diversity and equity in the geoscience community, build stronger postsecondary education in geoscience, and increase the number of geoscience-literate citizens who could make better informed decisions about Earth and Space Science issues such as geohazards, the effects of climate change, and resilience in the face of environmental challenges.

To better address inclusion and access as well as broaden exposure to a more diverse talent pool, it is imperative to introduce high school students to Earth and Space Sciences content and workforce training opportunities. The National Alliance of Concurrent Enrollment Partnerships (http://www.nacep.org) recognizes broader lexicon such as “college in high school” or “early college” for higher education within the high school context, as evidenced by models for bridging high school with college including possible accreditation. NAGT and NESTA members recommend leveraging STEM learning opportunities to improve preparation in Earth and Space Science to better address broader impacts benefiting society.

Recommendations:

NAGT and NESTA encourage several proactive actions by the following:

Secondary Faculty and Administration

- Identify local post-secondary institutions with Earth & Space Science or Environmental Science departments. Approach them about the possibility of concurrent enrollment or dual credit collaborations which will have the potential to increase their enrollment, provide visibility for their department, and increase the number of students who may choose to major in the Earth & Space Sciences.
• Identify a departmental liaison that will be the point of contact for this project. Design a course syllabus that demonstrates that the course meets college standards as well as state high school graduation requirements.
• Approach appropriate school district personnel, including the school guidance department. Establish the expectation that Earth science is a rigorous college-level course that will challenge students at the high school level and provide them with college credits before fully entering college.
• Once the course is developed and approved, work with the departmental liaison to create special learning opportunities for the student (such as guest speakers, field trips, and special projects).

Post-Secondary / Higher Education Faculty
• Identify local secondary institutions and qualified faculty. Approach them about the possibility of establishing concurrent or dual credit enrollment courses promoting Earth, space and environmental science topics.
• Invite high school science, technology, engineering, arts, and mathematics faculty, and high school guidance staff and administrators to post-secondary events highlighting the Earth, space and environmental sciences and their importance in Science, Technology, Engineering, Arts, and Mathematics (STEAM) education efforts.
• Actively pursue community and family engagement in punctuated and sustained informal outreach to promote the success of their students through recruitment and retention while pursuing geosciences degrees.
• Stay involved in the collaborations by actively initiating and implementing these programs, as well as seeking institutional accreditation.

NAGT’s Commitment:
In support of high quality Earth Sciences education, NAGT has and will continue to sponsor professional development programs for geoscience educators, including workshops, seminars, and teacher-scientist collaborations. NAGT disseminates evidence-based practices in the Journal of Geoscience Education, in In the Trenches, and on the Teach the Earth website. In doing so, the organization supports a diverse, inclusive, and thriving community of educators and education researchers to improve teaching and learning about the Earth.

NESTA’s Commitment:
NESTA supports excellence in K-12 Earth and Space Science education by providing professional development at both local and national meetings in addition to published media communications such as the monthly E-News and the quarterly journal The Earth Scientist. Committed to centering equity and inclusion, the vision of “champion Earth and Space Science education for ALL through a community of support” ensures that ALL students and teachers have access to quality Earth and Space Science education.

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Once adopted, NAGT position statements remain in effect for five years, as per the Procedure for Approval of NAGT Position Statements. (https://nagt.org/nagt/policy/ps-policy.html)

About NAGT: The National Association of Geoscience Teachers (www.nagt.org) works to raise the quality of and emphasis on teaching the geosciences at all levels. We count among our members K-12 teachers and college and university faculty as well as educators working with the general public through outlets such as museums and science centers. NAGT’s purpose is to foster improvement in the teaching of the Earth sciences at all levels of formal and informal instruction, to emphasize the cultural significance of the Earth sciences, and to disseminate knowledge in this field to the general public. The Association has been working towards three main goals: to improve geoscience education, to emphasize the relevance and cultural significance of the earth sciences, and to disseminate knowledge to educators.

About NESTA: The National Earth Science Teachers Association (www.nestanet.org) has served our membership with the vision to "inspire passion for stewardship and sustainability of Earth through a collaborative community of Earth and Space Science learning for all.” and mission "to champion Earth and Space Science education for ALL through a community of support." NESTA leaders are often called upon to provide a nationally-recognized voice speaking to the future of Earth Science education at meetings of other scientific and school leadership organizations. NESTA collaborates with federal agencies and organizations seeking to advance geoscience education and literacy. Membership in NESTA is a must to K-12 teachers seeking to promote geoscience education nationally and take part in leadership at the national level.