

Workforce Preparation by a STEM educational component of the USGS National Cooperative Geologic Mapping Program

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The three primary goals of the National Cooperative Geologic Mapping Program (NCGMP, Public Law 111-11) are to (1) Produce high-quality multi-purpose digital geologic maps and accompanying information to solve diverse land-use problems in high-priority areas and develop three-dimensional geologic frameworks that extend into the subsurface for use in a variety of predictive models; (2) Make geologic map information more accessible to the public by providing geologic maps, reports, and databases in a variety of digital formats; and (3) Ensure that the NCGMP will have the capabilities/work force to meet the future needs of the Nation. The third goal enabled the formation of the EdMap program as the educational component of NCGMP with its primary goal to train the next generation of geologic mappers in the geoscience workforce. The program is open to US academic institutions and to both upper-division undergraduate and graduate students. To date the EdMap program has funded 1048 students at 152 Universities.

The EdMap program funds students through a competitive application process where academic faculty submits proposals for research projects that include geologic mapping as the primary component. The program is cost shared with a required 1:1 University to Federal match. To ensure that practical knowledge in geologic mapping is gained by the student the program requires a well-conceived faculty-to-student mentoring plan which is a heavily-weighted proposal evaluation criterion. Students are also required to have completed fundamental geologic courses that enable them to successfully complete their mapping projects. Faculty-student mentorships typically include field mapping preparation prior to the field season, in-field hands-on mapping techniques and interpretation skills during the field season, followed by post mapping interpretation and report writing skills and digital geologic mapping techniques.

In order to evaluate the effectiveness of the program to provide a well prepared geoscience workforce, students are asked to complete a Student Participant Satisfaction Survey after they have completed the program. The survey asks student respondents to rate their satisfaction with various aspects of their EdMap experience and their overall satisfaction with their EdMap experience. Additionally, students are asked (1) to identify their education and work experience since their participation in the program, (2) if their EdMap experience helped them, and (3) general comments about their EdMap experience. The student surveys are beneficial to the program to understand the workforce and continued education trends of the respondent population. Of those EdMap students that responded to the survey over a 10 year period approximately 90% state that they go on to advanced degrees in geoscience or STEM disciplines while 10% go directly into the workforce in fields such as environmental consulting, the petroleum industry, education (teaching), and US Government and State Government service.