



Building a Virtual Geospatial Program at a Community College to meet Workforce Needs



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ABSTRACT

Monroe Community College (State University of New York) in Rochester, NY is building a Virtual Geospatial Information Science Technology (GIST) program to meet workforce needs in New York State with the development of: (1) a 60-credit online Associate in Applied Science (A.A.S.) degree, and (2) a GIST micro-credential for GIST professionals. With support from the National Science Foundation Advanced Technological Education program, and guidance from the National Geospatial Technology Center of Excellence and the 2019 New York State survey of GIS industry/professionals three new courses are being developed: Data Acquisition and Management, Web Mapping, and Introduction to Geospatial Programming. The program will be one of the first in the nation to offer a completely online micro-credential, GIST Certificate, and A.A.S. degree. Alumni mentors and advanced GIST students will provide enhanced online support for GIST students who need support outside of instructor office hours. Additional support for students in introductory GIS courses is available from college and public librarians, who have been trained to help students access course materials and software, and to assist with finding data for projects. Offering support early in the semester, when many students feel “lost”, is crucial for retention, and offering research assistance helps students finish strong. Students will be recruited into the program through: summer camp, dual credit, and targeted recruitment of introductory GIST students. The program also offers an innovative approach to internships as a part of the Capstone course, a model for other community colleges.



BACKGROUND

- *Meeting Workforce Needs with Virtual GIST* expands upon the success of the *GeoTech Consortium of Western New York: Get the GIST (Geospatial Information Science Technology) Certificate program* (New-to-ATE award # DUE 1501076; \$199,838; 07/01/15 to 06/30/19).
- The *GeoTech Consortium of Western New York* project developed a 24-credit hour geospatial certificate program and aligned it to the Geospatial Technology Competency Model (GTCM) 2014.

A.A.S. & GIST MICRO-CREDENTIAL

Three new GIST courses were developed in the new 60-credit hour A.A.S. degree program. Existing GIST courses were upgraded to meet current requirements for degree-based knowledge and skills. Upgrades and new courses were developed with the guidance of the college’s GIST Advisory Board and Pls from the National GeoTech Center of Excellence. Instructional materials will be leveraged from those developed by the GeoTech Center and based on the Geospatial Technology Competency Model (GTCM) 2018 and GIST-DACUM (Developing A CURriculum) 2014.

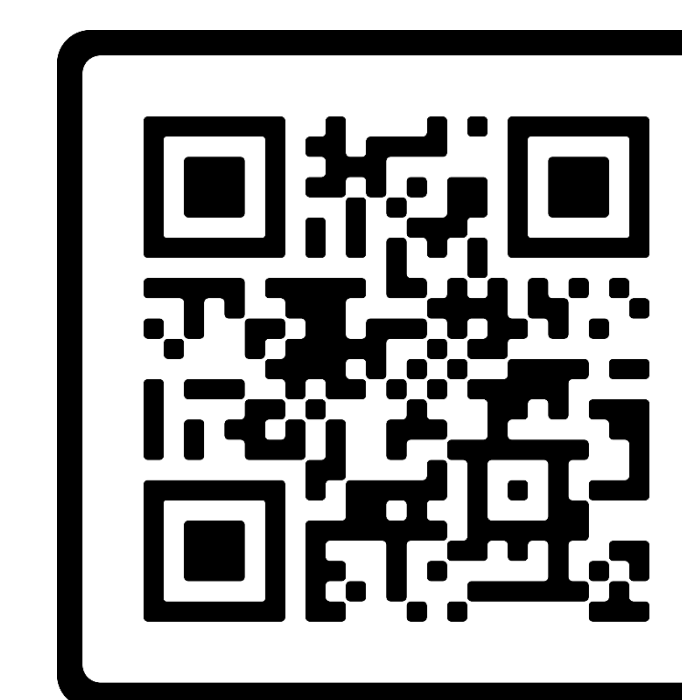
A.A.S. Curriculum Overview

Table 1			
FALL Year 1	Cr	SPRING Year 1	Cr
Introduction to GIST	3	<i>Web Mapping</i>	3
Cartography	3	Spatial Analysis	3
English	3	Art/Foreign Language	3
Introduction to Remote Sensing	3	Physical Geography Lab	1
Math	3	Physical Geography	3
		Physical/Health Education	2
FALL Year 2	Cr	SPRING Year 2	Cr
<i>Geospatial Data Acquisition and Management</i>	3	<i>Introduction to Programming for GIS</i>	3
Statistics	3	Capstone Course in Geospatial Technology	2
Elective	3	American History	3
Human Geography	3	Program Elective	3
Elective	3	Elective	3
		Elective	3

All of the courses have been approved and will be offered 2021-22. The A.A.S. in GIST is pending SUNY Approval. The micro-credential is shaded. It has been approved.

GIST Micro-credential

The 9-credit micro-credential is geared for GIST professionals. It covers skills in database acquisition, data management, Python for GIS, and web mapping. MCC’s GIST Advisory Board provides course curriculum direction. The 9-credit micro-credential is a stackable GIST program. One can earn three degrees in one: GIST Certificate + micro-credential + A.A.S.



SCAN ME

- To view the full activities and other workshop items, please visit our website: https://atecentral.net/msites/MCC_GIST

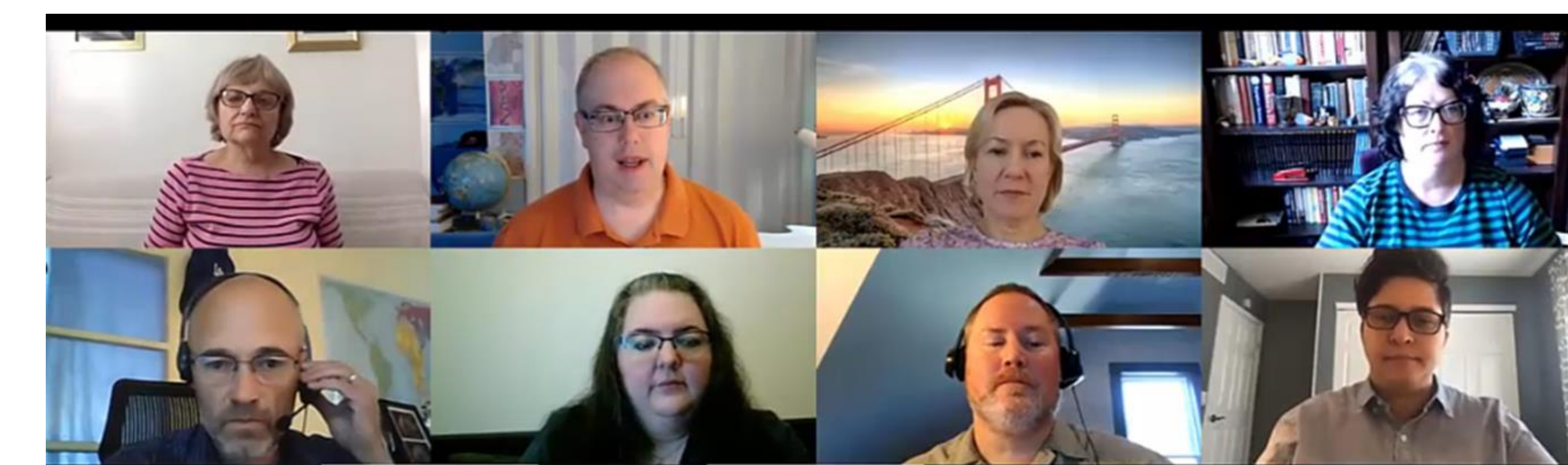
RECRUITMENT

Students are being recruited into the program through: an annual GIST Upward Bound summer camp, focused on hands-on GIST activities. Additional activities include Dual credit, Virtual Mapping Club events (400+ on GIS Day 2021), and Recruitment of GIST professionals at regional conferences.

INNOVATIVE SUPPORT

Alumni Mentors: It is common for online students to feel isolated. This project has enhanced the online support given to students to reduce isolation and increase prospects for academic success. GIST alumni mentors and student mentors are available at designated times in the day and evenings to augment the availability of support. These virtual meetings have fostered a personal connection with the mentor. The virtual program has provided invaluable support to students who need answers to blocks in their GIS workflow to help them complete assignments on time.

Librarians: Outreach to MCC and public librarians have provided an innovative approach to supporting students designed to reduce the digital divide. A professional development program, led by the project team, have trained librarians in the basic use of GIST software and spatial data. The librarians have assisted introductory GIST students with their acquiring spatial data for their project. The team has provided workshops to 12 librarians fall of 2020, and plan to work with 10 more fall of 2022.



Librarians at a virtual workshop fall of 2020.

VIRTUAL GIST INTERNSHIPS

- This program is the first to offer virtual GIST internships in Upstate New York. Interns have supported organizations that lack the infrastructure and financial resources to hire a GIS technician. Through the GIST Capstone Course, students have gained knowledge and skills to solve current, pressing regional issues in a virtual environment.

INDUSTRY PARTNERS



ACKNOWLEDGEMENTS

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