

GIS in Higher Education

A Report from the Field

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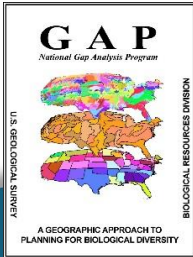
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About the presenter: Elizabeth Tulanowski



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ECOSYSTEM SCIENCE
AND SUSTAINABILITY
COLORADO STATE UNIVERSITY

Today's Topics

- What is the GIS in Higher Education Summit?
- Topics to discuss today
 - Where is GIS being taught?
 - What technology and software are being taught?
 - Are GIS educators meeting the needs of employers?
 - What challenges do GIS educators face?
 - What can we do better?

Local GIS offerings and programs (not an exhaustive list)

Colorado State Univ.	Front Range Comm. College	University of Northern CO	CU Boulder	Emily Griffith Technical College
Minor in Spatial Info. Management (21 credits)	GIS Certificate (28 credits) AAS in Geospatial Science BAS in Geospatial Science	B.A. in Geography Minor in GIS (18 credits) GISci Grad. Certificate	B.A. in Geography GIS track (37 credits) GIS certificate (20 credits)	GIS Certificate (38 credits)
Traditional (in-person) courses	Mostly traditional (in-person) courses Some online courses	Traditional and online courses	Traditional (in-person) courses	Hybrid and Online
Natural resources Social Sciences Engineering Landscape Arch.	Geospatial Sciences Department, multidisciplinary	Geography Department Natural and Social Sciences	Geography Department Natural Sciences	Multi-disciplinary
Intro to GIS Remote Sensing Spatial Modeling Spatial Analysis GPS GIS Applications	Intro to GIS Cartography Database Mgmt GPS Remote Sensing Web Dev. Intermediate GIS Spatial Modeling and Python Project Management Surveying	Intro to GIS Cartography Remote Sensing Geospatial Prgrmming. Web Mapping Quantitative Techniques in Geography	Mapping a changing world Intro to GIS Cartography I and II Remote Sensing GIS Modeling GIS Programming	Intro & Intermediate GIS Cartography Remote Sensing Spatial Modeling & Analysis Programming with Python Database Design GIS for Business
300- and 400-level	100- and 200- level (New 300- / 400- level courses in development for BAS)	Mostly 300- and 400-level	Mostly 300- and 400-level	100- and 200- level

University of Denver	Colorado School of Mines	Metro State University	University of Colorado – Denver
BA, MA,PhD in Geography Minor in GIS <i>(20 credits)</i> M.S. GISci. Grad. GIS certificate <i>(24 credits)</i>	Geological Engineering Environmental Engineering	B.S. in Geospatial Sciences B.A. in Geography GIS certificate <i>(23 credits)</i> Minor in GIS <i>(13 credits)</i>	Undergrad and Grad level GISci Certificates <i>(18 credits)</i>
Traditional and online courses	Traditional (in-person)	<i>Unknown</i>	<i>Unknown</i>
Multi-disciplinary	Geology and Geological Engineering	Multi-disciplinary	Multi-disciplinary
Course offerings: Too many to list! Intro to GIS, Databases, Remote Sensing, Programming, UAVs, Web mapping, Industry-specific courses, and more	Intro to GIS Applications of GIS	Introduction to GIS Cartography Remote Sensing Spatial Modeling in Raster GIS Applications Spatial Databases GPS	Mapping and Map Analysis GIS Cartography Remote Sensing I and II GIS Programming Web GIS Open Source for Geospatial GIS Applications for Health Sciences and for Urban Environment
Mostly 400-, some 300-level	200- level - grad level	200- - 400- level courses	200- - 400-level courses

GIS programs and offerings references

- [Colorado School of Mines](#)
- [Colorado State University](#)
- [CU Boulder](#)
- [Emily Griffith Technical College](#)
- [Front Range Community College](#)
- [Metro State University](#)
- [University of Denver](#)
- [University of Colorado - Denver](#)
- [University of Northern Colorado](#)

Are GIS Educators Meeting the Needs of Employers?

- Software and Technology
 - Mostly Esri, not moving to Pro yet
 - *But should we?*
 - Exposure to open source
 - Programming, web development, databases?
- Project work
 - Best way to learn
 - Service learning, internships
- Breadth and depth of GIS education

*What can we do
better?*

Observations and Challenges

- Inconsistency in contact hours
- Online or hybrid classes
 - “Flipped” classrooms
- Semesters, trimesters, blocks
- Change is hard
- Change takes time
- Scheduling - lab time
- Access to software

In summary

The next generation of GIS professionals is ready to learn

Are we teaching them what they need to succeed?

Thank you!

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Spatial Problem Solver

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