

# REAL Curriculum Program Alignment Proposal

Department or School: Enter dept/school name: Geospatial Science Date: 2/6/2020

Degree type: BS BA BBA BSN BM BFA BSW Minor Certificate

Program: GIS, Remote Sensing, and Data Analytics/Visualization Minor, Analytics Track


REAL Area Program Designation Sought (check all that apply):  R  E  A  L

Dept/School Contact: Andrew Foy afoy@radford.edu

BS/BA Requirements: \_\_\_\_\_

- Any degree program that fulfills a REAL area must include at least 9 unique credit hours for each area covered. At least 3 of these 9 credit hours must be at the 300 level or above
- A single major degree program may fulfill no more than three REAL areas for any one student, unless all four REAL areas are fulfilled by accreditation or licensure requirements.
- A single minor or certificate degree program may fulfill no more than two REAL areas.
- Degree program may cover up to two REAL areas using a single prefix.
- All courses documenting the coverage of a REAL area must fulfill all learning outcomes and be designated in that area.
- All courses that document fulfillment of a REAL area within a degree program of study are NOT required to be taught by the department/school. However, departments/schools are expected to formally communicate with other departments about reliance on and inclusion of courses in their degree program plans of study. Indicate this through signature of chair or director of the partnering department or school in the areas below.
- Departments or schools that seek to fulfill REAL areas must acknowledge assessment requirements for those areas. Assessment of degree seeking students is required to be conducted yearly by the department or school offering the degree program.
- If departments or schools want to use a menu of courses to fulfill a particular area, please duplicate the sections below for each REAL area and include information for each course included in the menu of options.
- Please save this file for submission as PROGRAM NAME\_ProgramType.docx (Example: Criminal Justice\_BS.docx)

By signing, the department/school acknowledges the above conditions and considerations:

Dept/School Signature 	Date: 4/21/20
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**Official Program Description:**

Please paste the entire official program description from the Radford University catalog in the space within this box. Find those here: <https://catalog.radford.edu/>

Please note that every department/school will have to submit a catalog change proposal for program that asks the Registrar's Office to insert language about the program coverage of the REAL areas into the official Radford University catalog upon approval.

**GIS, Remote Sensing and Data Analytics/Visualization Minor (17-19 credit hours)**

The GIS, Remote Sensing and Data Analytics/Visualization minor addresses the growing need to analyze and visualize spatial and non-spatial data. This program provides students with essential mapping, GIS, remote sensing, virtual reality, and geospatial analysis skills for a wide variety of disciplines and topics, such as geography, geology, biology, computer science, natural resources, health, demographics, marketing, environmental issues, energy, infrastructure, etc. Student will learn how to analyze various types of spatial and non-spatial data, and will explore and develop various visualizations and artistic expressions of that data, which includes maps and other cartographic products, graphs, infographics, interactive dashboards, 3D visualizations and virtual reality environments.

**Minor Required Courses (7 credits)**

GEOS 125 – Introduction to Geospatial Data and Technologies (3)

GEOS 250 or ITEC 250 – Introduction to Geographic Information Systems (4)

**Tracks (10-12 credits)****Analytics Track (10 - 12 credits):****Required (4 credits):**

GEOS 425 – Remote Sensing (4)

**Two electives from the list below (6-8):**

GEOS 270 – Fundamentals of Cartography (4)

GEOS 315 – Intermediate GIS Concepts (4)

GEOS 380 – Spatial Analysis Techniques (4)

GEOS 391 – Introduction to Virtual, Augmented and Mixed Reality (3)

GEOS 410 – Advanced GIS: Data Management, Modeling, Programming and Web Application Development (4)

GEOS 480 – Seminar in Geospatial Science (3)

GEOS 498 – Independent Study in Geospatial Science (3)

ITEC 304 - Database from the Manager's Perspective (3)

ITEC 340 - Database I (3)

**Visualization Track (10 credits)****Required (10):**

GEOS 270 – Fundamentals of Cartography(4)

ARTG 280 – Introduction to Graphic Design (3)

GEOS 391 – Introduction to Virtual Reality, Augmented Reality and Mixed Reality (3)

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*\*Students can get credit for both tracks if all the required courses for both tracks are taken (21 credits).*

*\* Student cannot receive a Geospatial Science Major and a GIS, Remote Sensing, and Data Analytics/Visualization Minor*

## APPLIED LEARNING

<p>L Area:  Course Prefix: GEOS  Course Number: 125  Course Title: Intro to Geospatial Data and Technology  Credit Hours:3  New course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  Revised course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Projected student enrollment per academic year: 15</p>	<p>Is this course required or an elective for your degree program? <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective  Is this course offered within your dept/school? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  If no, collaborating dept/school must also complete the remaining elements, and must sign below.</p> <p>Course Rotation: <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> Intersession <input type="checkbox"/> Other (Explain below)</p> <p>Intended Frequency: <input checked="" type="checkbox"/> Every academic year <input type="checkbox"/> Every semester <input type="checkbox"/> Every other year  <input type="checkbox"/> At least once every three years <input type="checkbox"/> Other</p> <p>Signature of collaborating chair/director indicating acknowledgement for inclusion and designation if not offered in dept/school:</p>
<p>L Area:  Course Prefix: GEOS  Course Number: 250  Course Title: Intro to GIS  Credit Hours:4  New course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  Revised course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Projected student enrollment per academic year: 120</p>	<p>Is this course required or an elective for your degree program? <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective  Is this course offered within your dept/school? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  If no, collaborating dept/school must also complete the remaining elements, and must sign below.</p> <p>Course Rotation: <input checked="" type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring <input checked="" type="checkbox"/> Intersession <input type="checkbox"/> Other (Explain below)</p> <p>Intended Frequency: <input checked="" type="checkbox"/> Every academic year <input type="checkbox"/> Every semester <input type="checkbox"/> Every other year  <input type="checkbox"/> At least once every three years <input type="checkbox"/> Other</p> <p>Signature of collaborating chair/director indicating acknowledgement for inclusion and designation if not offered in dept/school:</p>
<p>L Area:  Course Prefix: GEOS  Course Number:425  Course Title: Remote Sensing  Credit Hours: 4  New course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  Revised course: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Projected student enrollment per academic year: 20</p>	<p>Is this course required or an elective for your degree program? <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective  Is this course offered within your dept/school? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  If no, collaborating dept/school must also complete the remaining elements, and must sign below.</p> <p>Course Rotation: <input checked="" type="checkbox"/> Fall <input type="checkbox"/> Spring <input type="checkbox"/> Intersession <input type="checkbox"/> Other (Explain below)</p> <p>Intended Frequency: <input checked="" type="checkbox"/> Every academic year <input type="checkbox"/> Every semester <input type="checkbox"/> Every other year  <input type="checkbox"/> At least once every three years <input type="checkbox"/> Other</p> <p>Signature of collaborating chair/director indicating acknowledgement for inclusion and designation if not offered in dept/school:</p>

L Designated Course Required within the Program of Study Approved for Inclusion in the General Education Coursework: (please list at least one, can also be listed above but does not need to be)

<p>L Area:  Learning Goal: To explore professional practice through the application of knowledge, skills, and critical reflection.</p>	
<p>Learning Outcome 1: Students apply acquired knowledge and skills to develop professional identity or professional practice.</p>	<p>Description of learning outcome assessment plan:  Data will be collected from the REAL General Studies Minor assessments conducted by the university in the student's senior year. Once the data is received in the department the department's assessment committee will review the data to determine if corrective action is necessary. If needed the assessment committee will develop an improvement plan in combination with faculty teaching classes in this area and the department's curriculum committee. The agreed upon changes will be incorporated into the classes. The department's assessment committee will then continue monitoring the collected assessment data to determine the effectiveness of the corrective action and determine further actions if necessary.</p>

<p>Learning Outcome 2: Students critically reflect on their learning, abilities, experiences, or role within professional contexts.</p>	<p>Description of learning outcome assessment plan: Data will be collected from the REAL General Studies Minor assessments conducted by the university in the student's senior year. Once the data is received in the department the department's assessment committee will review the data to determine if corrective action is necessary. If needed the assessment committee will develop an improvement plan in combination with faculty teaching classes in this area and the department's curriculum committee. The agreed upon changes will be incorporated into the classes. The department's assessment committee will then continue monitoring the collected assessment data to determine the effectiveness of the corrective action and determine further actions if necessary.</p>
<p>Additional information for REAL Council consideration:</p>	

Are existing material resources adequate to support this program alignment proposal?

Yes  No If not, what additional material resources would be needed?

Are existing space resources adequate to support this program alignment proposal?

Yes  No If not, what additional space resources would be needed?

Are existing human resources adequate to support this program alignment proposal?

Yes  No If not, what additional human resources would be needed?

Department Curriculum Committee Recommendation:	Signature: 	Date: 4/21/20
Chair/Dean on Behalf of Dept/School:	Signature: 	Date: 4/21/20
College Curriculum Committee Approval:	Signature:	Date:
Dean/AVP Approval:	Signature:	Date:
REAL Council Recommendation:	Signature:	Date:
Faculty Senate Curriculum Committee Recommendation:	Signature:	Date:
Faculty Senate Approval:	Signature:	Date:
Provost Approval:	Signature:	Date: