GEOGRAPHIC INFORMATION SCIENCE CERTIFICATE

GISC-C-GIS

Subject: Administered by the Department of Geography and Planning.
Plan: Consists of 30.00 units as described below.
Program: The Plan will lead to a Certificate in Geographic Information Science.

Code	Title	Units
1. Core		
A. Complete the following:		
GPHY 242	Remote Sensing I: Remote Sensing of the Environment	3.00
GPHY 243	Geographic Information Science	3.00
GPHY 247	Introduction to Statistics	3.00
GPHY 345	Spatial Analysis	3.00
B. Complete 6.00 units from the following:		**6.00**
GPHY 342	Remote Sensing II: Digital Image Processing	
GPHY 344	Cartography and Computer Aided Design	
GPHY 346	GIS and Modelling for Environmental Applications	
GPHY 348	Application Design and Customization in GIS	
2. Option		
A. Complete 12.00 units from the following:		**12.00**
CISC 101	Introduction to Computer Programming	
CISC 121	Introduction to Computing Science I	
GEOL 463	Spatial Information Management in the Geosciences	
GEOL 464	Visualization in the Geosciences	
GPHY 105	The Digital Earth: Geospatial Data and Earth Observation	
GPHY 310	Landscape Ecology	
GPHY 325	Maps and Society	
GPHY 341	Photogrammetry	
GPHY 342	Remote Sensing II: Digital Image Processing	
GPHY 343	Applications for Geospatial Technology for Business	
GPHY 344	Cartography and Computer Aided Design	
GPHY 346	GIS and Modelling for Environmental Applications	
GPHY 347	Multivariate and Spatial Statistics	
GPHY 348	Application Design and Customization in GIS	
GPHY 349	GIScience and Public Health	
GPHY 372	Special Topics Geographic Information Science	
GPHY 415	Advanced Analysis of Earth Surface Processes	
MATH		
Total Units		**30.00**

3. Additional Requirements

A. A maximum of 3.00 units in MATH may be used towards the Certificate.

B. Only 3.00 units from GPHY 415 will be counted towards the Certificate in Geographic Information Science (GISC).

4. Notes

A. Students may do an independent study course (i.e., GPHY 501, GPHY 594, or GPHY 595) with a faculty member in Geography and Planning on a geographic information science topic upon approval of the Undergraduate Committee. This course may be counted toward the Certificate as an option course with approval of the Undergraduate Committee.

B. Students considering adding the Certificate in Geographic Information Science to their degree program should consult as soon as possible with the Department of Geography and Planning.

C. Students must pass all courses relating to the Certificate with a GPA of 1.90, and must be completing (or have completed) an undergraduate degree at Queen's University.