

**GEOGRAPHIC INFORMATION SYSTEMS CERTIFICATE  
2009-2010**

**Specific Program Requirements - must be taken at one of the MCC campuses**

GEOG 120	Introduction to Geographic Information Systems	3
GEOG 220	GIS Database and Design	3
GEOG 224	Applications in Geographic Information Systems	3
GEOG 228	Administrative Issues in GIS	3
GEOG 230	Geographic Information Systems	1-3

A student currently employed in a GIS facility may take the 1-hour option. All others must complete the 3-hour internship

TOTAL MCC CREDITS 13-15

**Specific Program Requirement-may be taken at either JCCC or MCC**

**ONE of the following computer science courses:**

CIS 260	Database Management (JCCC course)	4 eqv CSIS 143
CIS 162	Database Programming (JCCC course)	4 eqv CSIS 177
CSIS 128	Web Development (MCC course)	3
CSIS 144	Introduction to SQL w/Oracle (MCC course)	3

**Specific Program Requirement – must be taken at JCCC**

ENGL 121	Composition I	3 eqv ENGL 101
GEOS 145	World Regional Geography	3 eqv GEOG105

**ONE of the following courses:**

GEOS 130	General Geology <i>or</i>	5 eqv GEOL 101
GEOS 140	Physical Geography <i>and</i>	3 and
GEOS 141	Physical Geography Lab	2 eqv GEOG 104

**Select TWO courses from the following (not taken above):**

ADMJ 121	Intro to Admin of Justice	3 eqv CRJU 101
BIOL122	Principles of Biology <i>and</i>	3 eqv BIOL 101
BIOL123	Principles of Biology Lab	2
BIOL 125	General Botany	5 eqv BIOL 104
BIOL 127	General Zoology	5 eqv BIOL 106
BIOL 130	Environmental Science <i>and</i>	3 eqv BIOL 117
BIOL 131	Environmental Science Lab	2
BUS 230	Marketing	3 eqv BSAD 205
CIS 260	Database Management <i>or</i>	3 eqv CSIS 143
CIS 162	Database Programming	eqv CSIS 177

DRAF 120	Intro to Drafting <i>and</i>	2 eqv DRAF 152
DRAF 130	Intro to CAD Concepts: AutoCAD	3
	(Note: above two courses must be taken and count As only ONE course)	
ECON 130	Basic Economic Issues	3 eqv ECON 110
ECON 230	Economics I	3 eqv ECON 210
ECON 231	Economics II	3 eqv ECON 211
GEOS 140	Physical Geography <i>and</i>	3 eqv GEOG 104
GEOS 141	Physical Geography Lab	2
GEOS 145	World Regional Geography	3 eqv GEOG 105
GEOS 140	Physical Geography <i>and</i>	3 eqv GEOL 101
GEOS 141	Physical Geography	
TOTAL JCCC HOURS		22-25
TOTAL PROGRAM CREDIT HOURS		33-40