SURVEYING & GEOMATICS TRANSFER, AS
OIT ADVISING GUIDE

Prerequisites and Course Availability per Term

(for complete information, see 2017-2018 UCC Catalog)   **REVISED 01/02/17**

	UCC Course No. and Course Name		F	W	S	S	Credits	Prerequisites/Notes		OIT Course No.	Credits	
Term 1	DRF 112	Computer Aided Drafting (CAD) I	x				3			CE 203	3	
	ENGR 111	Engineering Orientation I	x				3	MTH 65		No transfer equivalent	0	
	GIS 203	The Digital Earth	x				4	MTH 65		GIS 103	3	
	WR 121	English Composition, Intro to Argument	x	x	x	x	4			WR 121	3	
	MTH 112	Elementary Functions	x	x	x	x	4	MTH 111 Algebra	18	MTH 112	4	13
Term 2	WR 122	English Composition, Style & Argument	x	x	x	x	4	WR 121		WR 122	3	
	GIS 234	GIS I		x			4			GIS 134	3	
	MTH 251	Calculus I	x	x			5	MTH 112		MTH 251	4	
	Arts & Letters[1]	Arts & Letters Elective	x	x	x	x	3		16	Humanities Elective	3	13
Term 3	CIV 214	CAD - Civil 3D			x		3	DRF 113 CAD I		GME 264	2	
	GIS 235	GIS II			x		4	GIS 234		GIS 205	2	
	MTH 252	Calculus II		x	x		4	MTH 251		MTH 252N	4	
	SUR 161	Surveying I			x		4		15	GME 161	4	12
Summer												
Term 4	SUR 162	Surveying II	x				4	SUR 161		GME 162	4	
	PH 211	Physics I w/Calculus	x				5	MTH 251 Co-requisite		PH 221	4	
	MTH 254	Vector Calculus I	x				4	MTH 252		MTH 254N	4	
	Social Science[1]	Social Science Elective	x	x	x	x	3			Social Science Elective	3	
								16			15 `
Term 5	SUR 163	Surveying III		x			4	SUR 162		GME 163	4	
	MTH 243	Intro to Probability & Statistics	x	x	x		5	MTH 111		OIT MTH 321	4	
	PH 212	Physics II w/Calculus		x			5	PH 211		PH 222	4	
	SUR 209	Photogrametry & Remote Sensing		x			4			ENV/GIS/GME Elective	3	
								18			15
Term 6	SUR 242	Land Descriptions & Cadastre			x		3	SUR 161		GME 242	2	
	PH 213	Physics III w/Calculus			x		5	PH 212		PH 223	4	
	WR 227	Technical Report Writing	x	x	x		4	WR 121		WR 227	3	
	SP 111	Fundamentals of Public Speaking	x	x	x		4	WR 095	16	SPE 111	3	
	TOTAL DEGREE CREDITS						**99**				**80**	

Program Advisor:
  NOTES: 1. One of the Arts & Letters or Social Science Elective must also meet the UCC Cultural Literacy Requirement

ADDITIONAL CLASSES THAT CAN BE TAKEN AT UCC

UCC Course No. and Course Name		F	W	S	S	Credits	Prerequisites/Notes	OIT Course No.	Credits
BA 221	Business Law	x	x	x		4		BUS 226	3
Arts & Letters	Humanitites Elective - See Advisor	x	x	x	x	6		Humanities Elective	6
Social Science	Social Science Elective	x	x	x	x	9		Social Science Elective	9
Math Elective	Math Elective	x	x	x	x	4		Math Elective	9
Science	Science Elective	x	x	x	x	8		Science Elective	8
SP 219	Small Group Discussion		x	x		3		SPE 321	3
ADDITIONAL CREDITS						**34**			**38**

TOTAL ARTICULATED CREDITS	**133**	118

Umpqua Community College
Associate of Science degree in Surveying and Geomatics
to

Oregon Institute of Technology
Bachelor of Science in Geomatics, Surveying Option

Articulation Agreement
2016 - 2017 Catalog

It is agreed that students transferring from Umpqua Community College (UCC) with the Certificate in Geographic Information Systems or with select courses below to Oregon Institute of Technology's (Oregon Tech) Bachelor of Science in Geomatics, Surveying Option (GMS) program will be given full credit for all selected courses listed below. This agreement is based on the evaluation of the rigor and content of the general education and technical courses at both UCC and Oregon Tech, and is subject to a yearly reevaluation by both schools for continuance. This agreement is dated _____, 2016.

Baccalaureate students must complete a minimum of 60 credits of upper-division work before a degree will be awarded. Upper-division is defined as 300-and 400-level classes at a bachelor's degree granting institution. Baccalaureate students at Oregon Tech must complete 45 credits from Oregon Tech before a degree will be awarded.

Students are responsible for notifying the Oregon Tech Admissions and Registrar's Office when operating under an articulation agreement to ensure their credits transfer as outlined in this agreement. In order to utilize this agreement students must be attending Umpqua Community College during the above catalog year. Students must enroll at Oregon Tech within three years of this approval.

By_____
   Jesse Morrow, Dean of Career
    and Technical Education
   Umpqua Community College

By_____
   Marla R. Edge
   Director, Academic Agreements
   Oregon Institute of Technology

By_____
   David Farrington
   Registrar
   Umpqua Community College

By_____
   Wendy Ivie
   University Registrar
   Oregon Institute of Technology

By_____
   Clay Baumgartner
   Department Chair, Engineering and
    Surveying
   Umpqua Community College

By_____
   Jack A. Walker
   Chair, Geomatics
   Oregon Institute of Technology

UCC Degree Courses & Oregon Tech Equivalent Credits

Umpqua Community College Course Number & Title	Qtr. Units	Oregon Institute of Technology Course Number & Title	Qtr. Units
DRF 112 Computer Aided Drafting (CAD) I	3	CE 203 Engineering Graphics	3
GIS 203 The Digital World and Geospatial Concepts	4	GIS 103 The Digital Earth	3
GIS 234 GIS I: Introduction to GIS	4	GIS 134 Introduction to GIS	3
GIS 235 GIS II: Analysis and Applications	4	GIS 205 GIS Data Integration	2
SUR 161 Plane Surveying I	4	GME 161 Plane Surveying I	4
SUR 162 Plane Surveying II	4	GME 162 Plane Surveying II	4
SUR 163 Route Surveying	4	GME 163 Route Surveying	4
SUR 242 Land Description and Cadastre	3	GME 242 Land Description/Cadastre	2
SUR 209 Photogrammetry & Intro to Remote Sensing	4	ENV/GIS/GME Elective	4
CIV 214 CAD Civil 3D and	3	GME 264 Digital Design for Surveying	2
ENGR 111 Orientation to Engineering I	3	Does not count toward Oregon Tech GMS degree[1]	--
MTH 112 Elementary Functions	4	MATH 112 Trigonometry	4
MTH 243 Intro to Probability & Statistics[2]	5	MATH 361 Statistical Methods I[2]	4
MTH 251 Calculus I	5	MATH 251 Differential Calculus	4
MTH 252 Calculus II	4	MATH 252 Integral Calculus	4
MTH 254 Vector Calculus I	4	MATH 254N Vector Calculus I	4
PHY 211 General Physics (Calculus)	5	PHY 221 General Physics with Calculus	4
PHY 212 General Physics (Calculus)	5	PHY 222 General Physics with Calculus	4
PHY 213 General Physics (Calculus)	5	PHY 223 General Physics with Calculus	4
SP 111 Fund of Public Speaking	4	SPE 111 Public Speaking	3
WR 121 English Comp: Intro to Argument	4	WRI 121 English Composition	3
WR 122 English Comp: Style & Argument	4	WRI 122 Argumentative Writing	3
WR 227 Technical Report Writing	4	WRI 227 Technical Report Writing	3
Humanities elective [3]	3	Humanities elective [3]	3
Social Science elective [5]	3	Social science elective [5]	3
Total UCC Credits[1]	**99**	**Total Oregon Tech Degree Credits**	**80**

Courses not required for UCC's Surveying and Geomatics degree but are required for Oregon Tech's Bachelor of Science in Geomatics, Surveying Option and can be taken at UCC or Oregon Tech.

BA 226 Business Law I	4	BUS 226 Business Law	3
Humanities elective[3]	6	Humanities elective [3]	6
Math elective	4	Math elective	3
Science elective [4]	8	Science elective [4]	8
Social science elective [5]	9	Social science elective [5]	9
SP 219 Small Group Discussion[2]	3	SPE 321 Small Group/Team Comm[2]	3
Total UCC additional credits[1]	**34**	**Total Oregon Tech Additional credits**	**32**
Total UCC credits[1]	**133**	**Total Oregon Tech credits**	**112**

Courses listed below are also required for the Bachelor of Science in Geomatics, Surveying Option, to be taken at Oregon Tech.

Oregon Institute of Technology Course Number & Title	Qtr. Units
GIS 316 Geospatial Vector Analysis I	4
GME 175 Computations and Platting	3
GME 241 Boundary Law I	3
GME 343 Boundary Surveys	4
GME 351 Construction/Engineering Surveying	3
GME 372 Subdivision Planning and Platting	3
GME 425 Remote Sensing	4
GIS 306 Geospatial Raster Analysis	4
GME 444 Adjustment by Least Squares	4
GME 451 Geodesy	4
GME 452 Map Projections	3
GME 454 GNSS Surveying	4
GME 466 Boundary Law II	3
GME 468 Geomatics Practicum	2
MGT 345 Engineering Economy	3

MIS 113 Introduction to Database Systems	3
MIS 118 Programming Fundamentals	4
WRI 327 Advanced Technical Writing	3
Additional Credits [6]	**68**
Total Accumulated Oregon Tech Degree Credits [7]	**180**

1. Excess credits will transfer to Oregon Tech as general electives with the exception of developmental course work; however these credits will **not** count towards the GMS degree.
2. Does not count toward upper-division requirement.
3. Oregon Tech requires 9 humanities credits. Choose from UCC's prefixes ART, ENG, MUP, MUS, PHL, R, TA or second year languages. However, only 3 humanities credits can be studio/performance based.
4. Students can transfer up to 6 credit hours of Social Science electives. Choose from the following UCC course prefixes: ANTH, CLA, EC, GEG (except 105), HST, PS, PSY, SOC, SSC, and WS, or other courses designated as Social Science electives by the Oregon Tech Registrar's Office.
5. Students can transfer up to 4 credit hours of science electives into the GMS program; these courses should be designated as science electives by Oregon Tech. Choose from the following UCC prefixes: BI, CHEM, GI, GS, or PH. Please note Oregon Tech does not grant science credit for computer science courses.
6. Baccalaureate students must complete a minimum of 60 credits of upper-division work before a degree will be awarded. Upper-division is defined as 300- and 400- level classes at a bachelor's degree granting institution.
7. Oregon Tech's Bachelor of Science in Geomatics, Surveying Option requires 180 total credits.

Bachelor of Science in Geomatics, Surveying Option

Curriculum

Required courses and recommended terms during which they should be taken:

Freshman Year		Fall
GIS 103	The Digital Earth	3
GME 161	Plane Surveying I	4
MATH 112	Trigonometry	4
WRI 121	English Composition	3
	Total	**14**

Freshman Year		Winter
CE 203	Engineering Graphics	3
GIS 134	Geographic Information Systems	3
GME 175	Computations and Platting	3
MATH 251	Differential Calculus	4
WRI 122	Argumentative Writing	3
	Total	**16**

Freshman Year		Spring
GIS 205	GIS Data Integration	2
GME 162	Plane Surveying II	4
MATH 252	Integral Calculus	4
SPE 111	Public Speaking	3
	Social Science Elective	3
	Total	**16**

Sophomore Year		Fall
GME 163	Route Surveying	4
GME 241	Boundary Law I	3
MATH 254N	Vector Calculus I	4
PHY 221	General Physics with Calculus	4
	Total	**15**

Sophomore Year		Winter
GME 242	Land Descriptions and Cadastre	2
GME 264	Digital Design for Surveying	2
PHY 222	General Physics with Calculus	4
WRI 227	Technical Report Writing	3
	Social Science Elective	3
	Total	**14**

Sophomore Year		Spring
GME 372	Subdivision Planning and Platting	3
MATH 361	Statistical Methods I	4
PHY 223	General Physics with Calculus	4
	Humanities Elective	3
	Total	**14**

Junior Year		Fall
GIS 306	Geospatial Raster Analysis	4
GME 343	Boundary Surveys	4
MIS 113	Introductions to Database Systems	3
WRI 327	Advanced Technical Writing	3
	Social Science Elective	3
	Total	**17**

Junior Year		Winter
GIS 316	Geospatial Vector Analysis I	4
GME 466	Boundary Law II	3
SPE 321	Small Group and Team Communication	3
	ENV/GIS/GME Elective	4
	Math Elective*	3
	Total	**17**

Junior Year		Spring
BUS 226	Business Law	3
GME 351	Construction and Engineering Surveying	3
GME 444	Adjustment by Least Squares	4
MGT 345	Engineering Economy	3
	Humanities Elective	3
	Total	**16**

Senior Year		Fall
BUS 304	Engineering Management	3
GME 425	Remote Sensing	4
GME 451	Geodesy	4
MIS 118	Programming Fundamentals	4
	Total	**15**

Senior Year		Winter
GME 452	Map Projections	3
GME 454	GNSS Surveying	4
	Science Elective	4
	Social Science Elective	3
	Total	**14**

Senior Year		Spring
GME 468	Geomatics Practicum	2
	Business Elective	3
	Humanities Elective	3
	Science Elective**	4
	Total	**12**

* Students must demonstrate advancement in educational content, courses must not be lower level than courses in the required curriculum. MATH 341 or MATH 362 recommended.

** GEOL 201 Physical Geology recommended.

Note: Humanities and Social Science Electives must be approved by the department.

Total credits required for B.S. in Geomatics, Surveying Option: 180

Bachelor of Science in Geomatics, Geographic Information Systems (GIS) Option

Geographic Information Systems (GIS) is a systematic approach to the management, analysis, and display of geographic information. Although the management of such information often times requires the application of advanced RDBMS techniques, the ability to see a project through to completion requires fundamental project management skills as well. The analysis of geodatasets is predicated on a firm understanding of spatial reference/coordinate systems, topological relationships, and statistical methods. Techniques for displaying geographic information take various forms such as maps, geographic datasets, and data models. Students graduating from this course of study will understand how to manipulate geographically based data in order to solve geospatial problems.

Students learn in a project-based environment how to manage the flow of data through the project in terms of data acquisition, processing, analysis, and presentation. Within the GIS option, students are able to select individual areas of focus based on independent study and/or online courses.

Career Opportunities

The list of opportunities for students in the field of GIS has been, and is continuing to show substantial growth. As our society becomes more data centered, the importance of understanding the spatial location of this data and its spatial relationship to other data is becoming increasingly apparent. Understanding such geospatial relationships is fundamental to areas such as health care, land records management, transportation modeling, environmental engineering/science, and urban planning, to name only a few. Local, state, and federal agencies are embracing GIS more each year as these agencies realize that GIS is the appropriate tool to solve long-standing geospatial problems. Private industry is also embracing GIS since it can be used to streamline delivery and/or response routes. Both private and public entities have also realized that GIS provides an excellent decision support framework structure.