

Minnesota North College – Vermilion Campus

Land Surveying

Academic Year 2023-24
Associate of Science (60 credits)

First Year

FALL SEMESTER 2023– 16 credits	Prerequisites	Credits	Hr Lc/Lb
<i>BIOL 1255 – Dendrology and Plant Ecology (MnTC Goal 3)</i>	(CLR, CLW)	3	(2/2)
BIOL 1561 – General Biology of Cells (MnTC Goal 3)	(CLR)	4	(3/2)
<i>NRT 1211 – Forest Field Skills</i>	(MATH0100, CLR)	3	(2/2)
<i>NRT/NSCI 1265 – Natural Resource Issues and Policies (MnTC Goal 10)</i>	(CLR, CLW)	3	
SOC 1200 – Introduction to Sociology (MnTC Goals 5 & 7)	(CLR)	3	

SPRING SEMESTER 2024 – 15 credits	Prerequisites	Credits	Hr Lc/Lb
ENGL 1231 – College Composition 1 (MnTC Goal 1)	(CLW)	4	
MATH 1300 – Precalculus (MnTC Goal 4)	(MATH0300)	5	
<i>NRT 2315 – Introduction to Geographic Information Systems</i>	(NRT1211 or WQAL/WSHD1656)	2	(1/2)
<i>PDEV 1130 – Employment Strategies</i>		1	
MnTC Goal 6 – Humanities and Fine Arts course (MnTC Goal 6 CP/IP)	(see catalog for options/prerequisites)	3	

SUMMER TERM 2024 – 1 credit	Prerequisites	Credits	Hr Lc/Lb
<i>NRT 2221 – Land Surveying Internship</i>	(NRT1211; 2.0 GPA)	1	

Second Year

FALL SEMESTER 2024 – 14 credits	Prerequisites	Credits	Hr Lc/Lb
COMM 1220 – Interpersonal Communication (MnTC Goal 1) <u>OR</u> COMM 1225 – Intercultural Communication (MnTC Goals 1 & 7)		3	
MATH 1311 – Calculus 1 (MnTC Goal 4)	(MATH1300)	5	
<i>NRT 2236 – Land Surveying</i>	(NRT1211 or NRT2315)	3	(1/4)
PHIL 1210 – Critical Thinking (MnTC Goals 2 & 6 TA)	(CLR, CLW)	3	

SPRING SEMESTER 2025 – 14 credits	Prerequisites	Credits	Hr Lc/Lb
ENGL 1240 – Technical Report Writing (MnTC Goal 1)	(ENGL1231)	3	
HUM 1215 – Human Creativity and Culture (MnTC Goals 6 TA & 8)	(CLR, CLW)	4	
MATH 1312 – Calculus 2 (MnTC Goal 4)	(MATH1311)	4	
POLS 1215 – American Government and Politics (MnTC Goals 5 & 9)	(CLR)	3	

Additional Recommended Courses

Completing BUS 1530 – Legal Environment of Business and NRT 2256 – Surveying and Mapping Techniques, in addition to the courses in *italics* above, will fulfill the course requirements of the Land Surveying Certificate (23 college credits are required).

Program Description

The Land Surveying AS degree program includes a strong historical focus on the Public Land Survey System and the US government survey of public lands, but applicable to the technology and issues facing present day land surveyors and technicians. Important elements of training key to employment include basic mapping skills using coordinate grid systems, latitude/longitude, Public Land Survey System, and the Universal Transverse Mercator System. Students will use a variety of GPS models to gain skills in data acquisition and computerized mapping.

Students interested in survey technician positions are encouraged to also complete the Natural Resource Technology-Forestry/Wildlife AAS (to provide a strong base for all aspects of natural resource technician employment) and the Land Surveying Certificate.

Occupational Titles

For students who choose to enter the work force following completion of the Land Surveying AS, job titles may include Survey Aide, Survey Technician, and Engineering Aide.

Land Surveying A.S.

Program Learning Outcomes

Graduates of this program will:

1. Demonstrate competence in Land Navigation and Public Land Survey systems.
2. Understand and demonstrate the use of basic terminology, principles, equipment, and skills required for land measurements.
3. Utilize the basic functions of digital tools for data collection, analysis and presentation (GPS/GIS/PowerPoint/Excel/graph functions).
4. Demonstrate awareness of historical, political, economic, and social factors which may affect the surveying profession.
5. Develop the quantitative mathematical skills necessary to measure, monitor, analyze and manage all aspects of natural resources.
6. Demonstrate an ability to communicate through both written and verbal formats.
7. Be able to identify herbaceous and woody vegetation and wildlife species by use of taxonomic key and remote sensing techniques.
8. Develop the skills to think creatively as well as become familiar with and use the creative ideas from great minds outside of science.

Transfer and Articulation Agreements

This is a transfer degree program with fewer technical skills courses, and more general education courses to allow for a smooth transfer into a bachelor's degree program, and eventually licensing as a registered Land Surveyor. An Articulation Agreement with St. Cloud State University is in the renewal process, as is a transfer guide with Michigan Technological University, into their Bachelor of Science Degree in Forestry.

Students pursuing this degree program who are also interested in completing the MnTC will need to complete one additional Goal 5 course of their choice. Students completing this degree program plus the additional Goal 5 course, a wellness course, and one PHED Activity Elective will also have completed the Liberal Arts and Sciences A.A. degree program at Minnesota North College.

Program Faculty Contact

Rita Koch (rita.koch@minnesotanorth.edu or 218-235-2160)

Mission

Minnesota North College prepares lifelong learners and engaged citizens through inclusive, transformative experiences reflecting the character and natural environment of the region.



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AASC Approval Date: 11-15-2021
Document Updated: 11-14-2024