

# MASTER OF SCIENCE IN SENSOR SCIENCE AND TECHNOLOGY

This Master of Science in Sensor Science program is tailored for full-time or part-time students who can complete the Program either on campus or online. Since current and future sensor systems have to be smart, scientific and engineering innovations with interdisciplinary approaches that utilize advanced sensing methods and data analysis to intuitively and intelligently collect, connect, analyze and interpret data from individuals, devices, and systems are expected to enable discovery and optimize health and environment. This program provides its graduates with advanced and specialized training in sensor science and technology, from a multidisciplinary perspective, covering aspects of principles, methods, techniques and technologies that underpin a large range of needs in applications spanning from research to industry, with an emphasis of targeting problems in health and environment. With the skills and knowledge in the specialty area, this program prepares its graduates to be more competitive in pursuing advanced PhD training and in pursuing careers in academia, government, and the many companies developing sensors and sensor-based solutions.

A minimum of 32 credit hours is required for the Master of Science (M.S.) in Sensor Science degree. Two options are available: a thesis option, and a non-thesis option. The two options share 23 credits Program core courses. A maximum of 12 credits of 400-level coursework may be used to fulfill graduate study requirements.

## Thesis Option

Students seeking the thesis option must register for 6-8 credit hours of research coursework numbered 591, write a thesis based on original research, and defend it before his or her M.S. thesis committee. The thesis and oral defense should be completed before the end of the third year of academic study. M.S. Chemistry students fulfill their comprehensive examination requirement with their thesis defense.

## Non-Thesis Option

Students seeking the non-thesis degree are required to complete a 3-credit project course. The non-thesis option is made available for online students, with the project course to be completed at local industrial setting. Students must pass an oral comprehensive examination by the end of the fourth semester in the program.

Code	Title	Credit Hours
<b>Program Core Courses</b>		<b>(23)</b>
Required courses		8
CHEM 503	Survey of Analytical Chemistry	3
CHEM 545	Sensor Science and Technology	3
CHEM 584	Graduate Seminar in Chemistry	1
CHEM 585	Chemistry Colloquium	1
Select a minimum of 6 credits from the Chemistry core courses		6
BIOL 504	Biochemistry	3
CHEM 455	Advanced Organic Chemistry	3
CHEM 520	Advanced Inorganic Chemistry	3
CHEM 535	Polymer Synthesis	3

CHEM 550	Chemical Bonding	3
Select a minimum of 9 credits from the following core electives		9
CHEM 472	Environmental Chemistry	3
FDSN 505	Food Microbiology	3
BME 525	Introduction to Medical Device	3
CHE 514	Process Analytical Technology	3
CS 584	Machine Learning	3
ITMT 593	Embedded Systems	3
<b>Additional requirements for Non-Thesis option</b>		<b>(9)</b>
CHEM 546	Sensor Project	3
Select a minimum of 6 credit hours from the Program Electives		6
IPMM 501	Managing the Creative Process	3
INTM 511	Industrial Leadership	3
CS 422	Data Mining	3
BIOL 515	Molecular Biology	3
SCI 511	Project Management	3
ECE 510	IoT and Cyber Physical Systems	3
<b>Additional requirements for Thesis option</b>		<b>(9)</b>
CHEM 591	Research and Thesis M.S.	6-8
A minimum of 1-3 credits of free electives		3-1

## Minimum degree credits required

32