

NANOSCIENCE, M.S.

The 31 credit hour, non-thesis, online M.S. in Nanoscience follows the Professional Science Master's degree model, featuring course work in nanosciences and business and an internship to provide practical experience. It is designed for students with strong backgrounds in technical fields who seek additional specialized training to qualify them for positions in companies that work in the field of nanotechnology.

The on-campus M.S. in Nanoscience Thesis Option is a 31 credit hour program that includes the completion of a 6 credit thesis. Students are expected to start their research project during their first year in the program.

For information regarding deadlines and requirements for admission, please see the Guide to Graduate Admissions (<https://grs.uncg.edu/prospective/guide/>).

In addition to the application materials required by The Graduate School, applicants must submit a personal statement indicating their interest in the program and a current Curriculum Vitae.

Qualified applicants will have a B.S. degree in an area related to nanoscience (physics, chemistry, biology, mathematics, computer science, or engineering).

Degree Program Requirements

Required: 31 credit hours

Non-Thesis Option

Code	Title	Credit Hours
Foundation Nanoscience Survey Courses (6 credits)		
NAN 616	Principles of Nanoscience I: Physical, Chemical, and Biological Foundations	3
NAN 617	Principles of Nanoscience II: Analytical, Statistical, and Computational Foundations	3
Nanoscience Elective Courses (15 credits)		
Select 15 credits of electives from NAN graduate courses *		15
Nanoscience Scientific Ethics (1 credit)		
NAN 710	Scientific Integrity	1
Nanoscience Practicum (3 credits)		
NAN 618	Lab Protocols and Practice	3
Science Communications (3 credits)		
NAN 619	Science Communications	3
Internship/Practicum (Capstone Experience) (3 credits)		
NAN 698	Professional MS in Nanoscience Internship	3
Total Credit Hours		31

* *Students may select relevant courses from outside NAN in consultation with their committee/advisor.*

Thesis Option

Code	Title	Credit Hours
Foundation Nanoscience Survey Courses (6 credits)		
NAN 616	Principles of Nanoscience I: Physical, Chemical, and Biological Foundations	3

NAN 617	Principles of Nanoscience II: Analytical, Statistical, and Computational Foundations	3
---------	--	---

Nanoscience Elective Courses (12 credits)		
Select 12 credits of electives from NAN graduate courses *		12
Nanoscience Scientific Ethics (1 credit)		
NAN 710	Scientific Integrity	1
Nanoscience Practicum (3 credits)		
NAN 618	Lab Protocols and Practice	3
Science Communications (3 credits)		
NAN 619	Science Communications	3
Thesis Research (6 credits)		
NAN 699	Thesis	6
Total Credit Hours		31

* *Students may select relevant courses from outside NAN in consultation with their committee/advisor.*

Instrumentation Concentration

Required: 31-33 credit hours

The Master of Science in Nanoscience Instrumentation Concentration involves course work on the theory and application of nanoscale characterization and analytical instruments including scanning electron microscopy, optical microscopy techniques, atomic force microscopy, Energy-dispersive X-ray spectroscopy (EDX), and surface analysis tools like the Raman spectroscopy and X-ray photoelectron spectroscopy (XPS). This concentration will train individuals in the theory, operation, and implementation of these instruments in the context of material characterization.

Non-Thesis Option

Code	Title	Credit Hours
Foundation Nanoscience Survey Courses (6 credits)		
NAN 616	Principles of Nanoscience I: Physical, Chemical, and Biological Foundations	3
NAN 617	Principles of Nanoscience II: Analytical, Statistical, and Computational Foundations	3
Nanoscience Elective Courses (6 credits)		
Select 6 credits of electives from NAN graduate courses *		6
Nanoscience Instrumentation Elective Courses (9-11 credits)		
Select three courses (9-11 credits) from the following: **		9-11
NAN 604	Nanotechniques	
NAN 615	Introduction to Spectroscopy Methods in Nanoscience	
NAN 623	Optical Microscopy for Nanoscience	
NAN 624	Particle Beam Microscopy for Nanoscience	
NAN 625	Molecular Biology in Nanosciences	
NAN 630	Advances in Nano-Biosensors	
Nanoscience Scientific Ethics (1 credit)		
NAN 710	Scientific Integrity	1
Nanoscience Practicum (3 credits)		
NAN 618	Lab Protocols and Practice	3
Science Communications (3 credits)		
NAN 619	Science Communications	3
Internship/Practicum (Capstone Experience) (3 credits)		

NAN 698	Professional MS in Nanoscience Internship	3
Total Credit Hours		31-33

* *Students may select relevant courses from outside NAN in consultation with their committee/advisor.*

** *Or other courses approved by the student's committee/advisor.*

Thesis Option

Code	Title	Credit Hours
------	-------	--------------

Foundation Nanoscience Survey Courses (6 credits)

NAN 616	Principles of Nanoscience I: Physical, Chemical, and Biological Foundations	3
NAN 617	Principles of Nanoscience II: Analytical, Statistical, and Computational Foundations	3

Nanoscience Elective Courses (3 credits)

Select 3 credits of electives from NAN graduate courses * 3

Nanoscience Instrumentation Elective Courses (9-11 credits)

Select three courses (9-11 credits) from the following: ** 9-11

NAN 604	Nanotechniques	
NAN 615	Introduction to Spectroscopy Methods in Nanoscience	
NAN 623	Optical Microscopy for Nanoscience	
NAN 624	Particle Beam Microscopy for Nanoscience	
NAN 625	Molecular Biology in Nanosciences	
NAN 630	Advances in Nano-Biosensors	

Nanoscience Scientific Ethics (1 credit)

NAN 710	Scientific Integrity	1
---------	----------------------	---

Nanoscience Practicum (3 credits)

NAN 618	Lab Protocols and Practice	3
---------	----------------------------	---

Science Communications (3 credits)

NAN 619	Science Communications	3
---------	------------------------	---

Thesis Research (6 credits)

NAN 699	Thesis	6
---------	--------	---

Total Credit Hours 31-33

* *Students may select relevant courses from outside NAN in consultation with their committee/advisor.*

** *Or other courses approved by the student's committee/advisor.*

Professional Master's in Business Concentration

Required: 31 credit hours

Code	Title	Credit Hours
------	-------	--------------

Foundation Nanoscience Survey Courses (6 credits)

NAN 616	Principles of Nanoscience I: Physical, Chemical, and Biological Foundations	3
NAN 617	Principles of Nanoscience II: Analytical, Statistical, and Computational Foundations	3

Nanoscience Elective Courses (6 credits)

Select 6 credits of electives from NAN graduate courses * 6

Professional Master's in Business Concentration Courses (9 credits)

Select three courses (9 credits) from the following: 9

MBA 701	Quantitative Analysis for Decision Making	
---------	---	--

MBA 702	Financial and Managerial Accounting	
MBA 703	Economic Policies and Impact on Global Outcomes	
MBA 706	Marketing Management	
MBA 716	Leadership and Sustainable Business	
Nanoscience Scientific Ethics (1 credit)		
NAN 710	Scientific Integrity	1
Nanoscience Practicum (3 credits)		
NAN 618	Lab Protocols and Practice	3
Science Communications (3 credits)		
NAN 619	Science Communications	3
Internship/Practicum (Capstone Experience) (3 credits)		
NAN 698	Professional MS in Nanoscience Internship	3
Total Credit Hours		31

* *Students may select relevant courses from outside NAN in consultation with their committee/advisor.*