

# Quality Science Minor

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The Quality Science minor will expand opportunities for students who are interested in careers in the pharmaceutical and drug device industries. There is a great need in these industries to ensure that the medicines, dietary supplements, devices and other products meet quality and safety standards to build patient trust and improve global health. This minor will expose students to the practices and processes used by the industry to assure quality and safety.

The Quality Science minor is offered through a cooperative education model between industry partners and Manhattan University. The industry partners are organized into the *Pathway for Patient Health* non-profit consortium (<https://www.pathway4ph.org/>). Students who successfully complete this minor with a grade of at least 70% in each *Pathway* course and receive a passing grade on the courses taken through Manhattan University will also receive a Certified Quality Science Professional (CQSP) micro-credential. Students who earn grades of 95% or higher in all 3 *Pathway* courses, will receive their micro-credential with honors.

*Pathway for Patient Health* provides students enrolled in the minor with opportunities for mentoring and access to their hiring platform for internships and job opportunities. *Pathway* partners include Johnson and Johnson, Astra Zeneca, Baxter, Boston Scientific, Cook Medical, Illumina, Johnson and Johnson, Merck, Proctor and Gamble, Sanofi, Steris, Thermo-Fisher, the Wistar Institute and, many others pharmaceutical companies.

Job opportunities for students with the minor and CQSP micro-credential include:

- Quality Assurance Auditor
- Product Validation Manager
- FDA Inspection Manager
- Quality Control Laboratory Specialist

The 15-16 credit minor requires five courses: two in-person Manhattan University courses and three online, asynchronous courses developed by the *Pathway* Chief Quality Officer Team but offered as Manhattan University courses through Moodle:

- One Manhattan University in-person business acumen course such as:
 

ACCT 201	Principles of Accounting I	3
CHML 461	Industrial Practice in Pharmaceutical Industry	3
ECON 150	Roots: Economics	3
ECON 203	Microeconomics	3
ECON 204	Macroeconomics	3
- One Manhattan University in-person laboratory science course such as:
 

BIOL 111	General Biology I	4
& BIOL 191	and General Biology I Lab	
BIOL 131	Principles of Biology I	4
& BIOL 181	and Principles of Biology I Lab	

BIOL 225 & BIOL 295	Microbiology and Microbiology Lab	4
CHEM 101 & CHEM 103	General Chemistry I and General Chemistry Laboratory I	4
PHYS 101 & PHYS 191	Physics I and Physics I Lab	4
SCI 203	Topics in Science I	3
SCI 204	Topics in Science II	3

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• Three online, asynchronous *Pathway* courses:

- Global Regulatory and Legal Requirements of Quality (SCI 206) - focused on the “why” of global quality science regulations.
- Risk and Failure Analysis (SCI 306) – designing risk out of products and processes, and conducting scientifically sound investigations. SCI 206 is a pre-requisite for this course.
- Product Development and Validation (SCI 307) - criticality of design, risk controls, clinical trials, scalability, yield and validation. SCI 206 is a pre-requisite for this course.