

NANOTECHNOLOGY (AOC)

PROGRAM OVERVIEW

Steve Heninger, *Professor of Physics and Chemistry*
sheninger@allegany.edu
Science 70
301-784-5257

This program is designed to provide the student with the essential knowledge and skills to function as a nanotechnology technician in research and/or nanofabrication. The program of study also serves as a transfer program to continue one's education toward the bachelor's degrees in the field of nanotechnology. **This program is offered in partnership with The Pennsylvania State University (PSU) and is designed to transfer to the Penn State "capstone semester" in Nanotechnology at University Park, PA, for program completion.** A student becomes qualified to enter the Penn State capstone semester upon successful completion (at least a C grade-point-average) of the first three semesters of this program and upon certification of required competencies by Allegany College of Maryland. Students planning to continue onto a bachelor's degree at a four-year college must be aware that different colleges may require somewhat different coursework. The student should meet with his/her advisor or the Advising Center to revise course sequence to insure degree completion and ease of transfer.

Successful completion of this program qualifies a student to apply for an Associate of Science degree in Arts and Sciences - Area of Concentration in Nanotechnology from Allegany College of Maryland upon completion of the coursework at PSU.

PROGRAM PATH

NANOTECHNOLOGY

AREA OF CONCENTRATION

PREPARATION FOR TRANSFER AND/OR EMPLOYMENT

FIRST SEMESTER*

	<u>Credit Hours</u>
Biological Science 101 (General Biology I)	4
Computer Technology 101 (Computer Literacy)	3
English 101 (English Composition I)	3
Mathematics 119 or 201 (Pre-Calculus I or Calculus I)	4
Total:	14

SECOND SEMESTER

Chemistry 101 (General Chemistry I)	4
Physics 101 (Introductory Physics I)**	4
Psychology 101 (General Psychology) ¹ or Social and Behavioral Science Elective ²	3
Speech 101 (Speech Communication) or Arts and Humanities Elective ³	3
Total:	14

THIRD SEMESTER

Arts and Humanities Elective ³	3
Chemistry 102 (General Chemistry II)	4
Physics 102 (Introductory Physics II)**	4
Social and Behavioral Science Elective ²	3
Total:	14

FOURTH SEMESTER (at Penn State)

NANO0211 (Material Safety and Equipment Overview, Nanotechnology)	3
NANO0212 (Basis Nanotechnology Processes)	3
NANO0213 (Materials in Nanotechnology)	3
NANO0214 (Patterning for Nanotechnology)	3
NANO0215 (Nanotechnology Applications)	3
NANO0216 (Characterization & Testing of Nanotechnology Structures and Materials)	3
Total:	18
Total Credit Hours:	60

* Math placement is critical for seamless program completion; the following rules apply:

- Students that need to take Mathematics 119, can finish in 4 semesters if they start in the Spring Semester and enrolling in the PSU capstone semester the following summer.

- Students, who have passed Mathematics 119 (or higher) by placement test or AP credit, can finish in 4 semesters by altering the course sequence as follows: starting with 2nd semester in Fall, 3rd semester in Spring, the 1st semester the following Fall and the PSU capstone semester the following Spring.

** Students who have the math background and plan to continue for their education towards a Bachelor's degree in Nanotechnology or Engineering must take Calculus I (Mathematics 201), General Physics I (Physics 201) and General Physics II (Physics 202).

****A transfer agreement exists between ACM and PSU. Students need to apply to PSU and be accepted in order to attend the capstone semester.*

¹ Psychology 101 and Speech 101 are preferred to other electives.

² Social and Behavioral Science elective must be from two different disciplines.

³ Arts and Humanities elective must be from two different disciplines.

NOTE: All courses specifically identified by course number are graduation requirements for this program.

