College of Liberal Arts and Sciences (CLAS) Academic Advising Center 2021-2022

Physics-General- BS

This is a **general** curriculum guide and is not applicable to every student. It is important to meet with your advisor.

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| **Year One** | | | |
| 1MTH 201 Calculus I  Prerequisites: MTH 122 and MTH 123; or MTH 124; or assignment through Grand Valley math placement.  CHM 115 Principles of Chemistry I  Prerequisites: High school chemistry, MTH 110 or 122 or 125 or 201  Gen Ed or 2**WRT 120** (self-placement) Gen Ed  Gen Ed  3Elective | 4  4 (6)  3  3  1 | MTH 202 Calculus II  Prerequisite: MTH 201  PHY 230 Principles of Physics I  Prerequisite: MTH 201. Corequisite: MTH 202  2**WRT 130** or **WRT 150** Strategies in Writing  Gen Ed | 4  5 (7)  3-4  3 |
| *Numbers noted within (parentheses) are contact hours Total* | *15* | *Total* | *15-16\** |
| **Year 2** | | | |
| MTH 203 Calculus III  Prerequisite: MTH 202  MTH 204 Linear Algebra I (required if taking MTH 304 – see note)  Prerequisite: MTH 122 and MTH 123; or MTH 124; or assignment through Grand Valley math placement.  PHY 231 Principles of Physics II  Prerequisites: MTH 202 and PHY 230  4Gen Ed with SWS | 4  3  5 (7)  3 | PHY 302 Introduction to Modern Physics (WINTER ONLY)  Prerequisite: PHY 231  5MTH 302 Linear Algebra & Differential Equations  Prerequisite: MTH 203  5***OR*** MTH 304 Analysis of Differential Equations  Prerequisites: MTH 203 and MTH 204  6CIS 261 Structured Programming in C  Prerequisite: MTH 201 (may be taken concurrently)  OR CIS 162 Computer Science I  Prerequisite: MTH 110  Gen Ed  3Elective (if needed) | 4 (6)  4  3  3  4  3  1-2 |
| *Total* | *15* | *Total* | *14-15* |
| **Year Three** | | | |
| 4PHY 309 SWS Experimental Methods in Physics (FALL ONLY)  Prerequisites: PHY 302 and one SWS course  PHY 330 Intermediate Mechanics (FALL ONLY)  Prerequisites: PHY 230 or permission of instructor, and MTH 302 or 304  7MTH 401 Mathematics for the Physical Sciences (FALL ONLY)  Prerequisites: MTH 302 or 304, PHY 231, or permission of instructor  ***OR*** 7MTH 300 Vector Analysis (WINTER ONLY)  Prerequisite: MTH 203  Gen Ed  3Elective (if needed) | 4 (6)  4  4  3  3  1 | 4PHY 311 SWS Advanced Laboratory II (WINTER ONLY)  Prerequisites: PHY 309 and one SWS course  PHY 340 Electromagnetic Fields (WINTER ONLY)  Prerequisites: PHY 231, MTH 302 or MTH 304  Gen Ed  3Elective  3Elective | 2 (6)  4  3  3  3 |
| *Total* | *15* | *Total* | *15* |
| **Year Four** | | | |
| PHY 350 Introduction to Quantum Mechanics (FALL ONLY)  Prerequisites: PHY 302, MTH 302 or 304 (MTH 300 recommended)  PHY 485 Senior Physics Project (Capstone) (FALL ONLY)  Prerequisite: Senior physics students in good academic standing  8Science Elective  Issue  Gen Ed or 3Elective | 4  1  3  3  4 | PHY 360 Statistical Thermodynamics (WINTER ONLY)  Prerequisite: PHY 231  PHY 486 Senior Physics Project (Capstone) (WINTER ONLY)  Prerequisites: PHY 485  8Science Elective Course  Issue  Gen Ed | 4  2 (9)  3  3  3 |
| *Total* | *15* | *Total* | *15* |

\* The block tuition rate is for 12-15 credits. You will pay additional tuition for any credits over 15.

See reverse for footnotes

1 **Students must take MTH 110, MTH 122, and MTH 123 or waive these courses through Grand Valley math placement in order to take MTH 201. These courses do not count towards the completion of the Physics major.**

2Students who self-place into WRT 120 should take this course in the fall semester and then take WRT 130 in the winter semester of their first year. Students will not need to take WRT 150 if they have earned credit for the course through AP/Dual Enrollment. A grade of C or better is required in WRT 130 or 150 in order to satisfy the WRT requirement at GVSU.

3 Elective refers to any course needed to fulfill the required 120 credits for graduation.

4 Students must complete a total of two courses with an SWS attribute

5 Physics majors intending to go to graduate school should take MTH 204 and MTH 304 rather than the MTH 302 option. Please see faculty advisor for assistance in choosing appropriate course.

6 See faculty advisor for additional options for computer science courses.

7 MTH 401 is recommended instead of MTH 300 for students planning to pursue graduate school, please see faculty advisor for assistance in choosing appropriate course.

8Students must complete 6 hours of science electives with a minimum grade of C (2.0) in each. Must be chosen from the following: PHY 105 (requirement for secondary education majors); any 300 or 400 level physics elective (excluding PHY 303, 306, and 307); CHM 351, 352, 356, or 358. *Students who plan to apply to graduate school in physics should take PHY 430, 440, and 450, which are offered alternate years; please confer with your physics faculty advisor for a specific degree plan dependent on when you complete PHY 230.*

**Declaring the Physics-General Major:**

1. Log into myBanner from the GVSU homepage
2. Once logged in select “Student”, “Student Records”, and then, “Change Major”
3. Click on the “Change Major 1/Program” box
4. Click on the down arrow in the box next to “New Major 1/Program,” from here scroll down and choose “Physics-BS”
5. Click “Submit” and then “Change to New Program”

**General Education Overlap**

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| **General Education Categories fulfilled by the Physics Major:** | |
| Mathematical Sciences: MTH 201 | Physical Science with Lab: CHM 115 |

**The CLAS Academic Advising Center is located in C-1-120 MAK, 616-331-8585**

[**http://www.gvsu.edu/clasadvising**](http://www.gvsu.edu/clasadvising) **(Also find us on Facebook and Twitter!)**

**Pre-Professional Students**

(Pre-Chiropractic, Pre-Dental, Pre-Medical, Pre-Optometry, Pre-Pharmacy, Pre-Podiatry, & Pre-Veterinary)

***Keep in mind that you may major in anything so long as you complete the prerequisites for your professional program.***

To find more information on Pre-Professional programs, visit [www.gvsu.edu/clasadvising/preprofessional](http://www.gvsu.edu/clasadvising/preprofessional)

To schedule an appointment with a Physics and/or Pre-Professional Advisor in the CLAS Academic Advising Center, visit [www.gvsu.edu/clasadvising](http://www.gvsu.edu/clasadvising) and click on “Schedule Appointment”