

Advising Sheet for NOVA Students Interested in Majoring in CHM.

1. The most important advice for a CHM major is to take math the first semester. Students can start with MTH 161 and 162, but will get behind on transfer if they plan on doing a math intensive (physical chemistry, analytical chemistry) degree. This especially applies if the student plans on going to graduate school in chemistry.
2. If the student has a 3 on the AP CHM exam, they will receive credit for CHM 111 at NOVA, but that credit will not transfer to a 4 year school. They need to take CHM 111 even if they earned a 3 on the AP CHM exam. If the student earns a 4 or 5, they will receive credit for both CHM 111 and 112 at NOVA. We strongly recommend that they consult the Credit for Prior Learning guide at the colleges that they want to transfer to to see if they need to take CHM 111 and 112.
3. Specific concentrations in the CHM BS will require other courses. For example, a BS in CHM with a concentration in BioChem at VCU requires BIO 101 and 102 at NOVA.
4. We strongly suggest that the students research the particular school that they are interested in transferring to and tailoring their NOVA Courses from there.
5. We would advise that if the students need BIO 101 and 102 that they take the sequence during the summer at NOVA.
6. Do not take half of a sequence at NOVA. For example, if a student takes PHY 201, they need to take PHY 202 here. Same with CHM 241/242.
7. The AS in Science at NOVA will not allow a student to graduate from GMU in 4 years.

UVA and VA Tech both follow the traditional course sequence in CHM: Ignoring College specific Gen Eds:

Year 1: CHM 111 and 112. Math sequence including precalc through calc 2.

Year 2: Organic lectures and labs as well as Physics 1 and 2 with Labs. Recommend that students considering grad school in CHM take calc based Physics and CHM majors looking to go to Med School take the algebra based is probably the most friendly transfer program for a CHM major.

GMU is very difficult for transferring into a CHM degree. GMU requires the Quantitative CHEM Analysis course before enrolling in Physical Chemistry, but does not offer the course in the summer. GMU students also need to take cell structures BIOL 213 as a prereq for biochem. BIO 206 at NOVA is the equivalent of BIOL 213, but BIO 206 requires BIO 101 as a prereq. It is very difficult or impossible to structure a CHM BS at GMU starting with an AS in Science at NOVA.

Degree sample schedules or plans:

[UVA CHM BS degree](#)

[VA Tech BS CHM degree](#)

[VCU CHM BS degree Biochemistry Concentration](#)

[GMU BS CHM Degree](#)

[JMU BS CHM Degree](#)

Overview: Transfer to VA Tech

This document maps the first two years of coursework for a Bachelor of Science (BS) in Chemistry at Virginia Tech into the Associate of Science (AS) in Science program at Northern Virginia Community College (NOVA). Following this mapped schedule will ensure a smooth transfer of credits and alignment with Virginia Tech's program requirements.

Year 1 at NOVA (Mapped to Year 1 at Virginia Tech)

Fall Semester

- CHM 111: General Chemistry I (Equivalent to CHEM 1035 at Virginia Tech) — 4 credits
- MTH 167: Precalculus with Trigonometry (Prepares for Calculus I) — 5 credits
- ENG 111: College Composition I (Equivalent to ENGL 1105) — 3 credits
- Humanities/Fine Arts Elective (Equivalent to CLE Area 2 at Virginia Tech) — 3 credits

Total Credits: 15

Spring Semester

- CHM 112: General Chemistry II (Equivalent to CHEM 1036 at Virginia Tech) — 4 credits
- MTH 263: Calculus I (Equivalent to MATH 1225) — 4 credits
- ENG 112: College Composition II (Equivalent to ENGL 1106) — 3 credits
- Social Science Elective (Equivalent to CLE Area 3) — 3 credits

Total Credits: 14

Year 2 at NOVA (Mapped to Year 2 at Virginia Tech)

Fall Semester

- CHM 241: Organic Chemistry I (Equivalent to CHEM 2564 at Virginia Tech) — 3 credits
- CHM 245: Organic Chemistry I Lab (Equivalent to CHEM 2154 Lab) — 2 credit at NOVA
- PHY 201 or PHY 241 College Physics1 or University Physics 1 (VA Tech accepts both) — 4 credits
- Humanities/Fine Arts Elective (Equivalent to CLE Area 6) — 3 credits
- History Elective (Equivalent to CLE Area 2 or 3) — 3 credits

Total Credits: 15

Spring Semester

- CHM 242: Organic Chemistry II (Equivalent to CHEM 2565 at Virginia Tech) — 3 credits
- CHM 246: Organic Chemistry II Lab (Equivalent to CHEM 2155 Lab) — 2 credit at NOVA
- PHY 202 or PHY 242: Physics II (Complete either the 201/202 or 241/242 sequence)— 4 credits
- Social Science Elective (Equivalent to CLE Area 3) — 3 credits
- Elective (Suggested: Advanced Math or Science to align with Virginia Tech's requirements) — 3 credits

Total Credits: 15

Notes for Transfer

1. **Guaranteed Admission Agreement (GAA):** NOVA and Virginia Tech have agreements to facilitate transfer. Ensure you meet the GPA and course requirements outlined in the GAA.
2. **Course Substitutions:** Consult NOVA advisors to confirm course substitutions and ensure all credits transfer seamlessly.
3. **CLE Requirements:** Virginia Tech's Curriculum for Liberal Education (CLE) Areas must be met. Choose electives at NOVA that fulfill these requirements.
4. **Advising:** Regularly meet with both NOVA and Virginia Tech advisors to ensure alignment with program expectations and requirements.

After completing your AS in Science at NOVA and transition to Virginia Tech to continue your BS in Chemistry without losing progress.

Year 3: Advanced Chemistry Courses

Fall Semester

- CHEM 4615: Physical Chemistry I (3 credits)
- CHEM 4635: Physical Chemistry Laboratory I (1 credit)
- MATH 2214: Differential Equations (3 credits)
- Free Elective (3 credits)
- CLE Area 4: Scientific Reasoning and Discovery Elective (3 credits)

Total Credits: 13

Spring Semester

- CHEM 4616: Physical Chemistry II (3 credits)
- CHEM 4636: Physical Chemistry Laboratory II (1 credit)
- CHEM 4414: Instrumental Analysis (3 credits)
- Free Elective (3 credits)
- CLE Area 7: Global Issues Elective (3 credits)

Total Credits: 13

Year 4: Specialized and Capstone Experiences

Fall Semester

- CHEM 4534: Advanced Inorganic Chemistry (3 credits)
- CHEM 4544: Advanced Inorganic Chemistry Lab (1 credit)
- CHEM 4704: Biochemistry (3 credits)
- Free Elective (3 credits)

- Undergraduate Research or Internship (3 credits, optional)

Total Credits: 13-16

Spring Semester

- CHEM 4554: Advanced Organic Chemistry (3 credits)
- CHEM 4424: Advanced Analytical Chemistry (3 credits)
- Free Elective (3 credits)
- Capstone Research Project (3 credits)

Total Credits: 12-15

Additional Notes

1. **Undergraduate Research:** Participating in research is highly encouraged and can fulfill elective or capstone requirements.
2. **CLE Areas:** The Curriculum for Liberal Education (CLE) areas include required general education courses. Select courses that align with your interests and goals.
3. **Advising:** Regular meetings with your academic advisor are crucial to ensure you're on track for graduation and meeting prerequisites for advanced courses.

This schedule provides a general framework for earning a BS in Chemistry at Virginia Tech. Adjustments may be necessary to account for AP/IB credits, transfer credits, or individual interests.

Transfer to GMU

Advising Guide for Students Planning to Transfer from Northern Virginia Community College (NOVA) to George Mason University (GMU) for a BS in Chemistry.

Overview

This guide is designed for students planning to complete a two-year Associate of Science (AS) degree in Science at Northern Virginia Community College (NOVA) and transfer to George Mason University (GMU) to earn a Bachelor of Science (BS) in Chemistry. Following this guide will help ensure a smooth transition and maximize transferable credits.

Semester-by-Semester Guide for AS in Science at NOVA

Year 1: Fall Semester

- ENG 111: College Composition I (3 credits)
- MTH 167: PreCalculus with Trigonometry (5 credits)
- CHM 111: General Chemistry I (4 credits)
- CST 110: Introduction to Communication (3 credits)

Total Credits: 15

Year 1: Spring Semester

- ENG 112: College Composition II (3 credits)
- MTH 263: Calculus I (4 credits)
- CHM 112: General Chemistry II (4 credits)
- Humanities/Fine Arts Elective (3 credits)

Total Credits: 14

Year 2: Fall Semester

- CHM 241: Organic Chemistry I (3 credits)
- CHM 245: Organic Chemistry I Lab (2 credit)
- PHY 241: University Physics I (4 credits)
- History Elective (3 credits)
- Social Science Elective (3 credits)

Total Credits: 14

Year 2: Spring Semester

- CHM 242: Organic Chemistry II (3 credits)
- CHM 246: Organic Chemistry II Lab (2 credit)
- PHY 242: University Physics II (4 credits)
- Humanities/Fine Arts Elective (3 credits)

- Elective (choose a transferable science or math course) (3 credits)

Total Credits: 14

Following this program will result in at least 2 ½ years at GMU as the student will have to take BIOL 213 and CHM 321 at GMU. Student must complete CHM 321 before taking PChem.

Number of CHM majors graduating in Virginia with a BS in CHM in 2022. (From ChatGPT)

UVA: 103

VCU: 100

VaTech: 139

William and Mary: 52

GMU: 40

ODU: 22

U of Richmond: 34