

# BAE Chemistry/Mathematics – Secondary Plan of Study

BAE Chem/Math-Secondary	Fall	Winter	Spring
Year 1	CHEM 161 MATH 124 PHYS 161 ENG 101 <i>(or other BCOM or CCOM GUR)</i>	CHEM 162 MATH 125 PHYS 162 GUR	CHEM 163 MATH 224 PHYS 163 GUR
Year 2	CHEM 251 MATH 204 SCED 481 GUR	CHEM 333 MATH 307/341 GUR GUR	CHEM 375 MATH 307/341 GUR GUR
Year 3*	CHEM 461 MATH 360 GUR	CHEM 462 MATH 309 GUR	MATH 331 MATH 419 SCED 370 GUR
*Must be admitted to Sec. Ed. Apply to Woodring/Secondary Education by 2/1 for fall admission. See list of application requirements on Sec. Ed. website.			
Year 4	IT 344 SEC 303 SEC 310 SEC 410 SEC 430	SEC 411 SEC 425 SEC 431 SEC 435 IT 444	SEC 432 SEC 433 SEC 436 SCED 491 SPED 363 MATH 483
Final Quarter	SCED 495 (18 credits)		

- **ENG 101** may be substituted for another GUR in the BCOM or CCOM blocks, if transferred in with ENG 101 credit. If GUR's are complete, course loads per quarter will be smaller.
- **Analytical Chemistry** (CHEM 333) offered Fall and Winter quarters.
- **General Chemistry Honors** (CHEM 175, 176, 225) *substitutes* for General Chemistry sequence (CHEM 161, 162, 163) *plus* Analytical Chemistry (CHEM 333).
- **Honors Calculus** (MATH 134 & 135) *substitutes* for Calculus & Analytic Geometry (MATH 124 & 125).
- **MATH 204 & 331** may be substituted for MATH 203 & MATH 303.
- **MATH 307/341/410** Students may choose 2. This plan opts for 307 & 341 for scheduling/sequencing purposes. 410 is only offered in fall and requires shifting of several other courses.
- \*All **Woodring application** requirements must be completed and application materials received by the Teacher Education Admission Office in Miller Hall 150 on or before these deadlines: Fall—February 1 & Winter—September 1. Contact a Secondary Education advisor prior to beginning the program.
- **This program offers two options** for Organic and Biochemistry course requirements. Please pay close attention to the "A" and "B" options for chemistry coursework. ***This recommended schedule reflects "Option A."*** Please keep in mind, "Option B" includes the Organic (CHEM 351-354) and Biochemistry Series (CHEM 471-473) which requires completion of BIOL 321 or 323. BIOL 321 or 323 are not otherwise required and also add BIOL 204, 205 and 206 as prerequisites. This adds at least 4 additional quarters to your plan of study

# CHECKLIST OF REQUIRED COURSES FOR BAE-CHEMISTRY/PHYSICS SECONDARY

Grade Course Number, Title [Prerequisites] Cr.

## Chemistry

_____	161	General CHEM I Lecture/Lab [Prerequisite: Math 114 (or higher) or equivalent math placement test score]	5
_____	162	General CHEM II Lecture/Lab [Prerequisite: CHEM 161]	5
_____	163	General CHEM III Lecture/Lab [Prerequisite: CHEM 162] <b>~AND~</b>	5
_____	333	Analytical CHEM Lecture/Lab [Prerequisite: CHEM 163] <b>~OR~</b>	5
_____	175	General Chemistry I, Honors [Prerequisite: One year of high school chemistry; Math 114 (or higher) or equivalent math placement test score]	5
_____	176	General Chemistry II, Honors [Prerequisite: CHEM 175]	5
_____	225	General Chemistry III, Honors [Prerequisite: CHEM 176]	5
_____	461	Physical Chemistry Lecture [Prerequisite: one year each of general chemistry, calculus and physics]	4
_____	462	Physical Chemistry Lecture II [Prerequisite: CHEM 461]	3

Choose either Option A or B:

Option A:

_____	251	Elementary Organic Chemistry [Prerequisite: CHEM 161 or 175]	5
_____	375	Elements of Biochemistry [Prerequisite: CHEM 251 or Organic Chemistry Series]	4

Option B:

_____	351	Organic CHEM Lecture I [Prerequisite: CHEM 163 (or concurrent)]	4
_____	352	Organic CHEM Lecture II [Prerequisite: CHEM 351]	4
_____	353	Organic CHEM Lecture III [Prerequisite: CHEM 352]	3
_____	354	Organic CHEM Lab I [Prerequisite: CHEM 352 (or concurrent)]	3
_____	375	Elements of Biochemistry <b>~OR~</b>	3
_____	471	Biochemistry Lecture I [Prerequisite: CHEM 163 (or 175), 353 (or concurrent); BIOL 205]	4
_____	472	Biochemistry Lecture II [Prerequisite: CHEM 471]	4
_____	473	Molecular Biology Lecture [Prerequisite: CHEM 472; BIOL 321 or 323 (or permission of instructor)]	3

## Math

_____	124	Calculus & Analytic Geometry Lecture [Prerequisite: <a href="#">see catalog</a> ] <b>~AND~</b>	5
_____	125	Calculus & Analytic Geometry Lecture [Prerequisite: MATH 124] <b>~OR~</b>	5
_____	134	Calculus I, Honors [Prerequisite: <a href="#">see catalog</a> ] <b>~AND~</b>	5
_____	135	Calculus II, Honors [Prerequisite: MATH 124 or MATH 134, and permission of instructor] <b>~OR~</b>	5
_____	138	Accelerated Calculus [Prerequisite: <a href="#">see catalog</a> ]	5
_____	224	Multivariable Calculus & Geometry Lecture [Prerequisite: MATH 125 or 138]	5
_____	204	Elementary Linear Algebra [Prerequisite: MATH 125 or 135; MATH 224 recommended] <b>~AND~</b>	4
_____	331	Ordinary Differential Equations [Prerequisite: MATH 204; MATH 224 recommended] <b>~OR~</b>	4
_____	203	Linear Algebra and Differential Equations I [Prerequisite: MATH 125 or 138 or equivalent] <b>~AND~</b>	4
_____	303	Linear Algebra and Differential Equations II [Prerequisite: MATH 203]	4
_____	309	Introduction to Proof in Discrete Mathematics [Prerequisite: MATH 125]	4
_____	360	Euclidean and Non-Euclidean Geometry [Prerequisite: MATH 124 or 135 or 138; MATH 204 and 302 or 309]	4
_____	419	Historical Perspectives of Mathematics [Prerequisite: 12 credits upper-division math]	3
_____	483	Method of Teaching Secondary Mathematics [Prerequisite: Minimum of two upper-division math courses, SEC 431, or permission of instructor]	4

At least two of the following:

_____	307	Mathematical Computing [Prerequisite: MATH 125 or 135 or 138; MATH 204]	4
_____	341	Probability and Statistical Inference [Prerequisite: MATH 124 or 125 or 138]	4
_____	410	Mathematical Modeling [Prerequisite: MATH 204, 224 and 331]	4

## Physics & Astronomy

_____	161	Physics w/ Calculus I Lecture [Prerequisite: MATH 124 (or concurrent)]	5
_____	162	Physics w/ Calculus II Lecture [Prerequisite: PHYS 161; MATH 124]	5
_____	163	Physics w/ Calculus III Lecture [Prerequisite: PHYS 162; MATH 124]	5

## Science Education

_____	370 Science & Society (WP3) [Prerequisite: Completion of science GUR's and 90 credits or instructor permission]	3
_____	481 Fundamentals of Teaching in Science [Prerequisite: CHEM 163 or 225, or GEOL 212, or BIOL 206, or PHYS 163]	2
_____	491 Methods in Secondary Education for Science Teachers [Prerequisite: <a href="#">Admission to Secondary Teaching</a> program and a major or concentration in natural sciences; SEC 431 or 532; SCED 481]	5

## Secondary Education

_____	303 Teaching Adolescents: Development and Identity [Prerequisite: <a href="#">Admission to Woodring</a> or permission of instructor or chair]	4
_____	310 Education, Culture, and Equity [Prerequisite: <a href="#">Admission to Woodring</a> or permission of instructor or chair]	4
_____	410 Dynamics of Teaching [Prerequisite: <a href="#">Admission to Secondary Education</a> ]	2
_____	411 Philosophical Foundations of Education [Prerequisite: SEC 410]	4
_____	425 Developmental Reading, Writing & Learning in Secondary Schools [Prerequisite: SEC 431]	4
_____	430 Secondary School Methods [Prerequisite: <a href="#">Admission to Secondary Education</a> , SEC 410 concurrent]	4
_____	431 Secondary School Methods II [Prerequisite: SEC/EDUC 301; SEC 410, 430 or equiv., SEC 435 concurrent]	4
_____	432 Secondary School Methods III [Prerequisite: SEC 430, 431 and SEC 433 & 436 concurrent]	4
_____	433 Teaching Laboratory [Prerequisite: SEC 431 or 533 or instructor permission, SEC 436 concurrent]	1
_____	435 Secondary Practicum I [Prerequisite: Concurrent registration in SEC 431 or 533, or instructor permission]	2
_____	436 Secondary Practicum II [Prerequisite: SEC 433 concurrent & SEC 432 or 534, or instructor permission]	1
_____	IT 444 Supporting Teaching & Learning w/Technology [Prerequisite: SEC 430; IT 344 or portfolio of basic technology skills, SEC 431 and 435 concurrent]	2
_____	495 Internship – Secondary [Prerequisite: Recommendation for supervised teaching]	18

## Special Education

_____	363 Secondary Students w/Special Needs [Prerequisite: <a href="#">Admission to Woodring</a> or permission of instructor]	4
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Please note that several Secondary Education, Science Education and Special Education courses require admission to Woodring. Application deadlines are **February 1<sup>st</sup>** for Fall quarter and **October 1<sup>st</sup>** for Winter quarter. Below is a very general list of their application requirements, it is **not** all inclusive. Please see the [Woodring College of Education](#) website and [application](#) for more details. You can reach Teacher Education Admissions by email at [TeacherEd.Admissions@wwu.edu](mailto:TeacherEd.Admissions@wwu.edu) or by phone at 360-650-3310. Their office is located in Miller Hall 150. The [Secondary Education Department](#) is located in Miller Hall 400 and can be reached by phone at 360-650-3327.

### **Make sure you are or have:**

- a WWU student or applied to WWU;
- an APPROVED ACADEMIC MAJOR that leads to a teaching endorsement;
- Undergraduate applicants - 60% of major endorsement coursework must be completed to apply;
- Post-baccalaureate applicants - most endorsement coursework needs to be completed to apply; please request an endorsement evaluation prior to applying to the program by emailing unofficial transcripts to: [TeacherEd.Admission@wwu.edu](mailto:TeacherEd.Admission@wwu.edu);
- a list of approved academic majors that lead to an endorsement are at: [wce.wwu.edu/admissions/approved-endorsement-programs-secondary-education](http://wce.wwu.edu/admissions/approved-endorsement-programs-secondary-education);
- ENCLOSED a completed endorsement evaluation document. See above website for the evaluation forms;
- two letters of recommendation addressing your potential for success in teacher education. One letter must be from someone who can attest to your academic ability and knowledge in your academic major;
- Recommendations may be submitted with the application in an enclosed envelope; OR
- Mailed, faxed, or emailed to the below contact numbers;
- a minimum 2.75 GPA overall or for the last 45 graded credits (Does not include: S/U graded credits or a repeated course. Does include, with credit, failing grades. GPA is calculated using the WWU grade point system. Upon request, we will evaluate GPA prior to applying to the program);
- met the English composition course requirement with a minimum grade of B;
- met the West-B requirement;
- enclosed copies of all UNOFFICIAL college transcripts;
- signed the Student Conduct Requirements and Agreement & the Application Review and Decisions page;
- completed ALL portions of the application and provide TWO COPIES of your written essay responses.