

SCHEDULING GUIDELINES FOR PREMEDICAL STUDENTS

The purpose of this document is to offer suggestions about sequencing of courses for students wishing to attend medical school or dental school after graduating from OWU. Before reading any further realize two things: (1) a student can choose any major at OWU and apply to either type of professional school, and (2) there is no single right schedule for all students. What classes make the most sense to take when depends on (1) when you want to apply, and (2) what major you have chosen. However, whatever major you choose, there are certain courses that need to be taken to do well on the MCAT or DAT; these are also required by a large percentage of medical and dental schools.

Minimum medical school course requirements

You may major in any subject but must complete the following:

- _____ General Chemistry I (CHEM 110)
- _____ General Chemistry II (CHEM 111)
- _____ Organic Chemistry I (CHEM 260)
- _____ Organic Chemistry II (CHEM 261)
- _____ Biochemistry I (CHEM 340) (CHEM 341 may also help on MCAT)
- _____ Principles of Physics I (PHYS 115) or General Physics I (PHYS 110)
- _____ Principles of Physics II (PHYS 116) or General Physics II (PHYS 111)
- _____ Biology. Typically two semesters are required. Although any biology courses may count, the two most important would be BIOL 120 and ZOOL 325. Taking additional biology courses is highly desirable; one should make careful choices in consultation with your advisor.

Those nine lab science classes meet the requirements of most medical schools and prepare you for the MCAT (and taking more biology would prepare you better). But additional subjects are on the MCAT – psychology, sociology, and statistics – so gaining so background in those areas is also desirable.

Some, but not all, medical schools also require coursework in two additional areas:

- _____ English. Two semesters are required by some schools. (Technically, this means two courses from the English Department, but to date, OWU humanities courses have been accepted by all medical schools to meet this requirement.)
- _____ Mathematics. This requirement varies widely. A handful of schools require two semesters of calculus. Other schools require two semesters of MATH (undefined) while still others don't require any. The only math on the MCAT are questions involving statistics, supposedly at a level that your background from BIOL 120 and 122 and ZOOL 325 might well be enough. But, to be eligible to apply to schools that require college math, here are a couple options: (1) MATH 110 (Calculus I) and MATH 230 (Applied Statistics) or MATH 200 (Biostatistics); or (2) if you have a weak math background, MATH 105 (Basic Probability and Statistics) and MATH 108 (Precalculus Mathematics).

Minimum dental school course requirements

Most schools have very similar requirements as medical schools (although the DAT does not include physics and can include some introductory botany and basic math). However, a number of dental schools have more particular courses that they require, e.g., OSU College of Dentistry requires both BIOL 120 and 122, anatomy, human physiology, microbiology, and an advanced composition course. These requirements can change, so you should check the websites of schools to which you intend to apply.

What courses do I need to take and when should I take them?

As indicated in the introductory paragraph, there is no single right answer to these two most commonly asked questions. Instead, there is a huge array of options and which option will work best for you depends primarily on whether you intend to apply after your junior or senior year (or later) and what major(s) you intend to earn at OWU. Thus, to get the right answers for you, you first need to answer some questions for yourself. And answering these requires a bit of information.

Timing of application: Application to most medical schools require going through an application service. For allopathic (MD) schools, this is AMCAS whereas for osteopathic (DO) schools it is AACOMAS. Each year, the application cycle starts near the first of June for the class entering school 14 months later. Most schools have a rolling cycle of acceptances, so applying too long after the start of a cycle – even August can be too late – pretty much assures a negative decision, so it is important to have everything done in June.

Major in college: Medical schools really don't care if you have a premed major or not. True, they do want you to have the right science and social science background to be able to achieve well in medical school and later as a physician, but what you choose as a major is less critical. Much more important than your precise major in college are (1) earning great grades (average gpa for accepted students nationwide is about 3.7) and (2) having the background to score highly on the MCAT (= Medical College Application Test). At OWU, we want each pre-med student to have a major in some department or discipline so that each student has sufficient background in an area besides medicine to be able to pursue an alternative career if you change your mind about becoming a doctor or if no medical school accepts you.

Based on this background information, here are the critical questions that you need to answer to determine what classes you want to take each year:

1. When do you want to apply?

- a) June of my junior year so that I can go directly from OWU to med school. If you choose this option, then pay special attention to the next section called "**Junior year application cycle.**"
- b) June after I've graduated at the earliest so that I have one or more bridge years before medical school (N.B. the majority of students currently accepted into medical school fall into this category). If you choose this, pay special attention to the section entitled "**Senior year application cycle.**"

For additional context, over the past ten years at OWU, 30% of those accepted applied as juniors – and thus with 0 bridge years, but the average was 1.9 bridge years for all successful applicants (including those who went direct).

2. **What major do you want to have** (in addition to or instead of pre-med).
 Separate tentative course listings occur below for each of the most commonly selected majors that folks combine with pre-med:
- a) pre-professional zoology
 - b) biochemistry
 - c) neuroscience
 - d) psychology

“Junior year application cycle.”

Whatever major you choose, the trick is getting in all the courses needed to do well on the MCAT. All of the scheduling recommendations here are based on students preparing for this test.

Freshman year	
Fall	Spring
CHEM 110	CHEM 111
ENG 105 or ZOO 120	ENG 105 or ZOO 120
Foreign language or MATH 110	Foreign language or MATH 110
PSYC 110 or SOAN 110	PSYC 110 or SOAN 110
Sophomore year	
Fall	Spring
(ZOO 271 or ZOO 122)	(ZOO 271 or ZOO 122)
CHEM 260	CHEM 261
PSYC 262	MATH 230 or PSYC 210
Junior year	
Fall	Spring
PHYS 115	PHYS 116
ZOO 325	ZOO 351
CHEM 340	(SOAN 347)
(ENG 265)	(ENG 265)
or	

Obviously there are few open slots in the schedule to pursue an unrelated major. This is why most students choose a science major before applying to medical school. Note also that some schools require two semesters of MATH in college and some require two semesters of calculus. Some also require two semesters of English.

Notice also, that to do well on the MCAT, a student must study specifically for the test and take practice tests both to be comfortable with the test and to have some confidence that s/he will do well on the test. This study needs to be accomplished either during the spring of one's junior year to take the test in May or June, the latest test date consistent with applying without a gap/bridge year after graduation.

If you aren't in a position to do well on the test in May or June, then you can always schedule for an August test date and spend the summer studying for the MCAT. You won't then be going to medical school directly from college, but if this is what it takes to get a good test score that will enhance your chance of a successful application, the time gap will be worth it.

I list below some possible class schedules for various majors along with classes that prepare one for the MCAT; not all include two semesters each of MATH and ENG. Also be aware that sometimes the semester particular classes are offered varies, so slight modifications to these schedules may be necessary. And let me re-emphasize, I list these majors only because they are among those chosen most frequently by premeds; you can be admitted to medical school with virtually any major at all.

Pre-professional zoology major

Fall	Freshman year	Spring
CHEM 110		CHEM 111
ENG 105 or ZOOLOGY 120		ENG 105 or ZOOLOGY 120
Foreign language or MATH 110		Foreign language or MATH 110
PSYC 110 or SOAN 110		PSYC 110 or SOAN 110

Fall	Sophomore year	Spring
ZOOLOGY 122		ZOOLOGY 271 or 261
CHEM 260		CHEM 261
PSYC 262 or MATH 230		PSYC 262 or MATH 230

Fall	Junior year	Spring
PHYS 115		PHYS 116
ZOOLOGY 325		ZOOLOGY 351
CHEM 340		(SOAN 347)
(ENG 265)	or	(ENG 265)

Fall	Senior year	Spring
ZOOLOGY 361	or	ZOOLOGY 329 or 331

Any one of these would complete the major

Basic biochemistry major (CHEM classes required depending on whether the student chooses a basic chem major or ACS certified major)

Fall CHEM 110 MATH 110 PSYC 110 or SOAN 110 ENG 105 or language	Freshman year	Spring CHEM 111 MATH 111 PSYC 110 or SOAN 110 ENG 105 or language
Fall CHEM 260 PHYS 115 BIOL 120	Sophomore year	Spring CHEM 261 PHYS 116 PSYC 262
Fall CHEM 340 (ZOOLOGY 325) (MATH 230)	Junior year	Spring CHEM 341 any of ZOOLOGY 333, 351, or 356 or BOMI 280, 326, 328, 353, or 357 CHEM 270
Fall CHEM 490 or 491	Senior year or	Spring CHEM 490 or 491

Neuroscience major – Molecular and Cellular Neuroscience Track

Fall CHEM 110 Foreign language or MATH 110 PSYC 110 or SOAN 110 ENG 105 or ZOOLOGY 120	Freshman year	Spring CHEM 111 Foreign language or MATH 110 PSYC 110 or SOAN 110 ENG 105 or ZOOLOGY 120
Fall CHEM 260 NEUR 250 BOMI 300.9	Sophomore year	Spring CHEM 261 PSYC 210 or MATH 105 or MATH 200.3 or MATH 230 NEUR 374
Fall CHEM 340 ZOOLOGY 325 PHYS 115	Junior year	Spring PSYC 342, 343, 345 or 349 BIOL 271 PHYS 116 NEUR 300.12
Fall PHYS 330	Senior year or	Spring NEUR 323

Neuroscience major – Behavioral and Cognitive Neuroscience Track

Fall CHEM 110 Foreign language or MATH 110 PSYC 110 or SOAN 110 ENG 105 or ZOOLOGY 120	Freshman year	Spring CHEM 111 Foreign language or MATH 110 PSYC 110 or SOAN 110 ENG 105 or ZOOLOGY 120
Fall CHEM 260 NEUR 250 BOMI 300.9 or NEUR 300.12	Sophomore year	Spring CHEM 261 PSYC 210 or MATH 105 or MATH 200.3 or MATH 230 NEUR 374
Fall CHEM 340 ZOOLOGY 325 PHYS 115 One of PSYC 343, 345, or 349	Junior year	Spring PSYC 342, 343, 345 or 349 BIOL 271 PHYS 116 PSYC 342
Fall PHYS 330 or NEUR 300.3 or 323 Another of PSYC 343, 345, or 349	Senior year	Spring ZOOLOGY 329 or 331 NEUR 300.12 or BOMI 300.9 (if not taken as sophomore)

Psychology Major

Fall PSYC 110 CHEM 110 (MATH 110) ENG 105 or Foreign language	Freshman year	Spring PSYC 262 CHEM 111 ZOOLOGY 120 ENG 105 or Foreign language
Fall PSYC 210 CHEM 260	Sophomore year	Spring PSYC 255 CHEM 261
Fall CHEM 340 ZOOLOGY 325 PHYS 115 PSYC X	Junior year	Spring PSYC 310 ZOOLOGY 271 or 351 PHYS 116 (ENG 265)
Fall Three more tier 3 PSYC needed this year	Senior year	Spring

“Senior year application cycle.”

Planning on a bridge year obviates the need for taking three lab science classes at once – a feature of all the schedules above. As above, the scheduling guidelines are just suggestions and based on preparing the student to do well on the MCAT. Whatever your major, these are the courses you need to do well on the MCAT; those in parentheses are less essential for the MCAT, but may prove useful.

Freshman year	
Fall	Spring
CHEM 110	CHEM 111
ENG 105	ENG 105
PSYC 110 (or SOAN 110)	PSYC 110 (or SOAN 110)
or	

Sophomore year	
Fall	Spring
BIOL 120 (or 122)	BIOL 120 (or 122)
CHEM 260	CHEM 261
PSYC 262	(BIOL 271)

Junior year	
Fall	Spring
CHEM 340	ZOOL 325 (if available)
ZOOL 325 (or wait until later)	(ZOOL 351)

Senior year	
Fall	Spring
PHYS 115	PHYS 116
ZOOL 325 (if not yet taken)	(ZOOL 329 or 331)
(ENG 265)	(SOAN 347)

Note that some schools require two semesters of MATH in college and a very few require two semesters of calculus. Some also require two semesters of English. The schedule above does not reflect these requirements, but merely includes the courses that prepare one for the MCAT.

Notice also that to do well on the MCAT, a student must study specifically for the test and take practice tests both to be comfortable with the test and to have some confidence that s/he will do well on the test. This study needs to be accomplished either during the spring of one's senior year to take the test in May or June, the latest test date consistent with applying with only a single gap/bridge year after graduation. Not taking it until August after graduating assures two bridge years.

I list below some possible class schedules for various majors that also prepare one for the MCAT; not all include two semesters each of MATH and ENG.

Pre-professional zoology major

Fall	Freshman year	Spring
CHEM 110		CHEM 111
ENG 105 or ZOOLOGY 120		ENG 105 or ZOOLOGY 120
Foreign language or MATH 110		Foreign language or MATH 110
PSYC 110 (or SOAN 110)		PSYC 110 (or SOAN 110)
Fall	Sophomore year	Spring
ZOOLOGY 122		BIOL 271 or ZOOLOGY 261
CHEM 260		CHEM 261
PSYC 262 or MATH 230		PSYC 262 or MATH 230
Fall	Junior year	Spring
PHYS 115		PHYS 116
ZOOLOGY 325 (or 271)		ZOOLOGY 351
Fall	Senior year	Spring
ZOOLOGY 325 [if not taken as Jr]		ZOOLOGY 351 [if not taken as Jr]
CHEM 340		(SOAN 347)
(ENG 265)		(ZOOLOGY 329 or 331)
(ZOOLOGY 361)	or	
(Either of these last two would complete the major)		

Basic biochemistry major (ACS major requires more CHEM and PHYS 110,111)

Fall	Freshman year	Spring
CHEM 110		CHEM 111
MATH 110		MATH 111
PSYC 110 (or SOAN 110)		PSYC 110 (or SOAN 110)
ENG 105 or foreign language		ENG 105 or foreign language
Fall	Sophomore year	Spring
CHEM 260		CHEM 261
PHYS 115 (PHYS 110)		PHYS 116 (PHYS 111)
BIOL 120		PSYC 262
Fall	Junior year	Spring
CHEM 340		CHEM 341
(MATH 230)		CHEM 270
Fall	Senior year	Spring
ZOOLOGY 325		ZOOLOGY 351
CHEM 350		CHEM 352
CHEM 480		CHEM 490 or 491

Molecular and Cellular Neuroscience track, Neuroscience major

Fall CHEM 110 Foreign language or MATH 110 PSYC 110 (or SOAN 110) ENG 105 or ZOOLOGY 120	Freshman year	Spring CHEM 111 Foreign language or MATH 110 PSYC 110 (or SOAN 110) ENG 105 or ZOOLOGY 120
Fall CHEM 260 NEUR 250 BOMI 300.9	Sophomore year	Spring CHEM 261 PSYC 210 or MATH 105 or MATH 200.3 or MATH 230 NEUR 374
Fall CHEM 340 PHYS 115 BIOL 271	Junior year or	Spring PSYC 342, 343&344, 345 or 349 PHYS 116 ZOOLOGY 351
Fall ZOOLOGY 325 NEUR 300.12	Senior year or or	Spring NEUR 323 or PHYS 330 NEUR 300.12

Neuroscience major – Behavioral and Cognitive Neuroscience Track

Fall CHEM 110 Foreign language or MATH 110 PSYC 110 (or SOAN 110) ENG 105 or BIOL 120	Freshman year	Spring CHEM 111 Foreign language or MATH 110 PSYC 110 (or SOAN 110) ENG 105 or BIOL 120
Fall CHEM 260 NEUR 250 BOMI 300.9 or NEUR 300.12	Sophomore year	Spring CHEM 261 PSYC 210 or MATH 105 or MATH 200.3 or MATH 230 NEUR 374
Fall CHEM 340 ZOOLOGY 325 One of PSYC 343, 345, or 349	Junior year	Spring PSYC 342 & PSYC 300.19 BIOL 271
Fall PHYS 115 PHYS 330 or NEUR 300.3 or 323 Another of PSYC 343, 345, or 349	Senior year	Spring PHYS 116 ZOOLOGY 329 or 331 NEUR 300.12 or BOMI 300.9 (if not taken as sophomore)

Psychology Major

Fall	Freshman year	Spring
PSYC 110		PSYC 262
CHEM 110		CHEM 111
(MATH 110)		ZOOL 120
ENG 105 or Foreign language		ENG 105 or Foreign language
Fall	Sophomore year	Spring
PSYC 210		PSYC 255
CHEM 260		CHEM 261
Fall	Junior year	Spring
ZOOL 325		ZOOL 271 or 351
PHYS 115		PHYS 116
PSYC 310		PSYC Tier 3
Fall	Senior year	Spring
CHEM 340		PSYC Tier 3
PSYC Tier 3		(ENG 265)
PSYC Tier 3		