

## Admission to Biomedical, Health Professions, and Veterinary Medicine Programs

### Minimum Undergraduate Course Requirements

This chart will help students get started in planning for possible admission to health professions graduate programs. These courses represent the minimal requirements.

Most schools (especially medical schools) have additional course requirements beyond the minimum listed here. Students should check the admissions standards for individual schools. **If students take the more rigorous sciences and math, all schools and all options remain viable.** Specific advising related to entrance to health professions'

schools is also available in the Eberly College of Science Advising Center, First Floor Ritenour ([www.science.psu.edu/premed](http://www.science.psu.edu/premed)). Students considering any of these programs should work closely with their academic adviser regarding their interests and choices of Penn State majors.

Professional School	Medicine	Chiropractic,	Dentistry	Physical	Physician	Nursing*
Penn State Courses	(MD/DO)	Optometry, Podiatry		Therapy	Assistant	
Web Sites	<a href="http://www.aamc.org">www.aamc.org</a>	<a href="http://www.chirocolleges.com">www.chirocolleges.com</a>	<a href="http://www.ada.org">www.ada.org</a>	<a href="http://www.APTA.org">www.APTA.org</a>	<a href="http://www.aapa.org">www.aapa.org</a>	<a href="http://www.aacn.nche.edu/research-data/BSNNCG.pdf">www.aacn.nche.edu/ research-data/BSNNCG.pdf</a>
	<a href="http://www.aacom.org">www.aacom.org</a>	<a href="http://www.acatoday.org">www.acatoday.org</a>	<a href="http://www.adea.org">www.adea.org</a>		<a href="http://www.paeaonline.org">www.paeaonline.org</a>	
		<a href="http://www.aacpm.org">www.aacpm.org</a>				
		<a href="http://www.opted.org">www.opted.org</a>				
BMB 211 or 401 (Biochemistry)	Most schools require -Plan A: BMB401&402; Plan B: BMB 401,self-study 402 ;Plan C: BMB 211	Typically not required but for Optometry--BMB 211 or 401 often required	Typically strongly recommended or required (211 or 401 depending on school); no BIOCHEM on DAT	Typically not required	Typically not required but depends on school, sometimes accepted in place of 1 of the organic chem semesters	Typically not required
BIOL 110	Required	Required	Required	Required	Required	Typically not required
BIOL 129	Typically not required	Typically not required Optometry varies	Typically not required	Required	Required	Required
BIOL 230W Cell Biology(covers genetics broadly but with less depth;BMB 251&252 cover genetics with breadth&depth	Required (B)	Often required	Required (D)	Varies by program	Varies by program	Typically not required
BIOL 240W or 141/142 Physiology	Required (C)	Often required	Often required	Required, only 141/142 usually accepted	Required, only 141/142 usually accepted/preferred	Required, only 141/142 usually accepted/preferred
CHEM 110, 111, 112, 113 General Chemistry	Required	Required	Required	Required	Required	Varies by program
CHEM 210, 212, and 213W Organic Chemistry	Required Best preparation for MCAT exam	Required Some schools accept CHEM 202/203 (6 cr.)	Preferred Best preparation for DAT exam	Varies by program Some schools accept CHEM 202/203 (6 cr.)	Varies by program, most that require accept 202/203	Typically not required
MICRB 106/107 or 201/202 Microbiology	Typically not required	Typically not required Optometry MICRB 201/202	Typically recommended but typically not required	Typically not required	Often required	Required
MATH	Varies by school: a few require calculus, most do not. Often a certain number of semesters/credits of college level math is sufficient	22 or higher required *Optometry MATH 140 typically required	22 or higher required (A)	21 or higher required	21 or higher required	21 or higher required
PHYS 250R/250L and 251R/L or 211R/L, 212R/L, 213R/L, 214R/L Note: Suffixes may vary by campus.	Required (B)	Required (B)	Required (B)	Required (B)	Typically not required	Typically not required
PSYCH 100	Strongly recommended (D)	Varies by program	Varies by program	Required	Required	Required
PSYCH 212	Typically not required	Typically not required	Typically not required	or 270 or 470 Required	Varies by program	or HDFS 129 required
PSYCH 270 or 470	Typically not required	Typically not required	Typically not required	or 212 required	Typically not required	Typically not required
PSYCH 221	Recommended (D)	Recommended	Recommended	Recommended	Recommended	Typically not required
SOC 001, 003, or 005	Strongly recommended (D)	Typically not required	Typically not required	Typically not required	Typically not required	SOC 1 or 5 required
STAT 200, 240 or 250	Varies by program, typically required or recommended	Varies by program	Varies by program	Required	Required	Required

\* BS in Nursing is a second degree. Some schools also require nutrition and genetics (e.g., NUTR 251, BIOL 222).

(A) A few medical schools require Calculus. Most are fine with College Algebra, and some do not specify.

(B) BIOL 110 and 230W AND either BIOL 240W or 141 (or BIOL 472 at upper level) are recommended to adequately prepare students for the required MCAT examination.

(C) BIOL 110 and 230W are recommended to help students prepare for the required DAT examination.

(D) PSYCH 100, SOC 1, and PSYCH 221 or SOC 3 are strongly recommended to help students prepare for the required MCAT examination.

Updated 11/2016

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Professional School	Occupational	Genetic	Pharmacy	Veterinary
Penn State Courses	Therapy	Counseling		Medicine
Web Sites	<a href="http://www.aota.org">www.aota.org</a>	<a href="http://www.nsgc.org">www.nsgc.org</a>	<a href="http://www.aacp.org">www.aacp.org</a>	<a href="http://www.aavmc.org">www.aavmc.org</a>
B M B 211 or 401 (Biochemistry)	Typically not required	Varies by program	Recommended or Required (a B or C in Organic followed by an A in BMB 401 can show aptitude)	1 or 2 semesters required
BIOL 110	Required	Required	Required	Required
BIOL 129	Required	Recommended	Varies by program	Higher level ANAT and PHYS desired
BIOL 230W Cell Biology	Typically not required	Required; also require or recommend BIOL 460	Varies by program, often required or recommended	Varies by program
BIOL 240W or 141/142 Physiology	Varies by program	Varies by program	Required	Varies by program
CHEM 110, 111, 112, 113 General Chemistry	Varies by program	Required	Required	Required
CHEM 210, 212, and 213 Organic Chemistry	Typically not required	Required Some schools accept CHEM 202/203 (6 cr.)	Required	Required Some schools accept CHEM 202/203 (6 cr.)
MICRB 106/107 or 201/202 Microbiology	Typically not required	Typically not required	Often required or highly recommended	MICRB 201/202 required of most
MATH	Varies by program	022 or higher required Varies by program	Varies, usually Calculus or a combination of College Algebra & Elementary Calculus (MATH 110)	Typically requires calculus Varies by program
PHYS 250R/250L and 251R/L or 211R/L, 212R/L, 213R/L, 214R/L Note: Suffixes may vary by campus.	Varies by program	Typically not required	Required	Required
PSYCH 100	Required	Required	Varies by program	Typically not required
PSYCH 212	Required	Required	Typically not required	Typically not required
PSYCH 270 or 470	Required	Recommended or required	Typically not required	Typically not required
PSYCH 221	Recommended	Recommended	Recommended	Typically not required
SOC 1, 3 or 5	Frequently required	Typically not required	Typically not required	Typically not required
STAT 200, 240 or 250	Required	Required	Varies by program	Required or recommended, STAT 250 preferred

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(C) BIOL 110 and 230W are recommended to help students prepare for the required DAT examination.

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