

Jefferson University
College of Life Sciences
Pre-Medical Studies Major



Jefferson

Philadelphia University +
Thomas Jefferson University

PRE-MEDICAL STUDIES MAJOR

POLICIES AND PROCEDURES

STUDENT HANDBOOK

2018-2019

INTRODUCTION

The course sequence and content of this major has been designed to supply all the necessary education required to become a biomedical professional, particularly in the fields of medicine, dentistry, pharmacy and veterinary care as well as supporting the development of analytical, empathic, professional, oral and written communication skills. To achieve this, in addition to standardized classes required for all science majors, the major has at its heart a core of 9 courses targeted to meet these needs. This will be accomplished through a well-organized, comprehensive major of courses and clinical experiences developed and implemented by highly qualified faculty and administrative staff using Jefferson University facilities and outside clinical sites.

Purpose of This Handbook

This handbook is designed to be used by students in the Pre-Medicine Major in conjunction with:

1. Jefferson University Catalog
2. Jefferson University Student Handbook

Together these resources are designed to provide students with information which will assist them in their academic endeavors at the University including: policies that pertain to students, an outline of the curriculum, and some guidelines to help students in preparation for this challenging academic experience.

This handbook was not designed to be all-inclusive. There are some policies that may pertain to students that may not be covered in these sources. If you have any questions that cannot be answered from these sources, please feel free to discuss these with the Major Director or faculty. Students are required to sign the attestation statement on the last page of this handbook. They may also find answers to some of their questions about a career in the health professions in *Appendix A – Ten Frequently Asked Questions* or *Appendix B – Other Healthcare Careers* at the end of this handbook. Pre-Medicine Major specific policies are in addition to University policies listed in the Student Handbook and University Catalog and do **not** substitute for those policies. Please read these sources *carefully* and *thoroughly*. We hope they will be helpful.

GENERAL LEARNING GOALS, OBJECTIVES AND OUTCOMES

Graduates of the Pre-Medical Studies Major will be expected to demonstrate knowledge, proficiency, and competency in the following areas and tasks. Graduates will:

1. Perform a computer medical literature search, and critically analyze and evaluate the medical literature in terms of its relevance to clinical practice.
2. Demonstrate a functional understanding of the principles of the basic medical sciences of anatomy, physiology, pathophysiology, immunology, microbiology, genetics and pharmacology.
3. Demonstrate competence in written, oral, and electronic forms of communication.
4. Demonstrate a functional understanding of the basic principles of epidemiology, evidence-based medicine, and the common statistical tools and research methods utilized in medical research.
5. Demonstrate an appreciation for the importance of life-long learning, and the skills needed to pursue life-long learning and participate in scholarly activities such as continuing medical education, medical writing, education and applied research.

COMMITMENT TO DIVERSITY AND ACCEPTANCE

The Pre-Medical Program shares the general commitment of the University to diversity, as stated in the Student Handbook (<http://www.philau.edu/studenthandbook/2016-2017/diversity.html>), particularly that our “*community is founded upon multicultural opportunity. It is committed to cultural diversity, and the principles of openness, positive self-identity and fair play. The University community respects the uniqueness and worth of each member, based on mutual sensitivity, responsiveness and civility. Our vision sees enlightened students, faculty, administrators, staff, alumni and trustees living together in harmony, in ways that set an example of a just and humane society. Human diversity is not sameness. Factors such as disability, religion, gender, sexual orientation and ethnic background all make up differences. This diversity enriches the educational experience of every individual. But differences are often perceived as a basis for discrimination.*

Racism and sexism are two common expressions of such attitudes. Such views, based solely upon the cultural experiences of one social group, deny the humanity of other social groups. We, therefore, reject stereotyping, prejudice, harassment and discrimination for any reason. We will not condone words or actions intended to make any human being an object of scorn, ridicule or second-class treatment. We are committed to helping each member of the Jefferson University community live harmoniously, peacefully, compassionately and justly with persons of different cultures, backgrounds and lifestyles. Further, we are committed to taking steps to support these convictions with the appropriate social structures and systems.”

In addition, it is important to note that as future health professionals you will encounter individuals from all walks of life. We encourage you to celebrate your own differences in the security and acceptance of our program as well as supporting those of others in this respect.

The journey to graduate school is not a competition between students and as such we encourage you to work and study with others who will both enrich and broaden your horizons. Similarly, when entering into preceptorships (see page 11), it is strongly suggested that you select situations which reflect meeting a diversity of individuals in practice for your future professional role.

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CURRICULUM

Bachelor of Science Pre-Medical Studies

LEVEL I (FIRST YEAR) – 26-27 credits		Credits	Semester	Grade	Trans. Equiv.
College Studies Courses – 19 credits					
FYS-100	First Year Seminar	1	_____	_____	_____
WRIT-101/101G	Writing Seminar I <i>WRIT-100 may only be used to satisfy free elective credits</i>	3	_____	◆ _____	_____
DBTU-114	Debating U.S. Issues	3	_____	_____	_____
CHEM-103	Chemistry I Lecture (Fall)	3	_____	_____	_____
CHEM-103L	Chemistry I Lab (Fall)	1	_____	_____	_____
BIOL-103	Biology I Lecture (Fall)	3	_____	_____	_____
BIOL-103L	Biology I Lab (Fall)	1	_____	_____	_____
MATH-111	Calculus I (Spring)	4	_____	_____	_____
Science Core – 8 credits					
CHEM-104	Chemistry II Lecture (Spring)	[CHEM-103] 3	_____	_____	_____
CHEM-104L	Chemistry II Lab (Spring)	[CHEM-103L] 1	_____	_____	_____
BIOL-104	Biology II Lecture (Spring)	[C-or better in BIOL-103] 3	_____	_____	_____
BIOL-104L	Biology II Lab (Spring)	[C-or better in BIOL-103L] 1	_____	_____	_____
LEVEL II (SECOND YEAR) – 32-33 credits					
College Studies Courses – 13 credits					
MATH-112	Calculus II (MATH-111) – Fall	4	_____	_____	_____
ADIV-2	American Diversity [WRIT-101, DBTU-114]	3	_____	_____	_____
GDIV-2()	LANGUAGE OR GLOBAL DIVERSITY [WRIT-101, DBTU-114]Includes 101 level World languages		_____	_____	_____
WRIT2()	WRITING SEMINAR II Multimedia Communication [WRIT-101]WRIT-202 is for transfer students	3	_____	◆ _____	_____
Science Core – 19 credits					
CHEM-201	Organic Chemistry I Lecture (Fall)	[CHEM-104, 104L] 3	_____	_____	_____
CHEM-201L	Organic Chemistry I Lab (Fall)	[CHEM-104L/L] 1	_____	_____	_____
CHEM-202	Organic Chemistry II Lecture (Spring)	[CHEM-201, 201L] 3	_____	_____	_____
CHEM-202L	Organic Chemistry II Lab (Spring)	[CHEM-201, 201L] 1	_____	_____	_____
STAT-301	Biostatistics (Fall) [“C” (2.00) or better in MATH-111 or MATH-112]	3	_____	_____	_____
Pre-Medical Core					
(BIOL-201)	Anatomy & Physiology I [C-or better in BIOL-104/104L]	3	_____	_____	_____
(BIOL-201L)	Anatomy & Physiology I Lab [C-or better in BIOL-104/104L]	1	_____	_____	_____
(BIOL-202)	Anatomy & Physiology II [C-or better in BIOL-210/201L]	3	_____	_____	_____
(BIOL-202L)	Anatomy & Physiology II Lab [C-or better in BIOL-201/201L]	1	_____	_____	_____
Summer Semester (between sophomore and junior year) 6 credits					
BIOL-493	Preceptorship I [C- in BIOL-104/L, CHEM-104/L, min GPA 3.0]	3	_____	_____	_____
BIOL-494	Preceptorship II [C- in BIOL-104/L, CHEM-104/L, min GPA 3.0]	3	_____	_____	_____

LEVEL III (THIRD YEAR) – 31-33 credits		Credits	Semester	Grade	Trans. Equiv.
College Studies Courses – 9 credits					
ETHIC-2	Ethics (WRIT-101, DBTU-114)	3	_____	_____	_____
ISEM-3()	Integrated Seminar (WRIT-201/202, GDIV-2XX or GCIT-2XX)	3	_____	_____	_____
GCIT-2()	Global Citizenship (WRIT-101, DBTU-114)	3	_____	_____	_____
Science Core - 16 credits					
PHYS-201	Physics I Lecture [MATH-112]	3	_____	_____	_____
PHYS-201L	Physics I Lab [MATH-112]	1	_____	_____	_____
PHYS-203	Physics II Lecture [PHYS-201/201L]	3	_____	_____	_____
PHYS-203L	Physics II Lab [PHYS-201/201L]	1	_____	_____	_____

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Pre-Medical Core

BCHEM-312	Biochemistry I Lecture (Fall) [CHEM-201, 201L]	3	_____	_____	_____
BCHEM-312-L	Biochemistry I Lecture (Fall) [CHEM-201, 201L]	1	_____	_____	_____
BCHEM-313	Biochemistry II Lecture (Spring) [BCHEM-312 and 312L]	3	_____	_____	_____
BCHEM-312-L	Biochemistry I Lecture (Spring) [BCHEM-312 and 312L]	1	_____	_____	_____

Free Electives (6-8 credits) (may be used towards Public Health, Psychology, Genetics, Business or Chemistry minors)

()	_____	3/4	_____	_____	_____
()	_____	3/4	_____	_____	_____

LEVEL IV (FOURTH YEAR) – 30-34 credits

Credits Semester Grade Trans. Equiv.

College Studies Courses – 7 credits

DBTG-300	Debating Global Issues (Fall) (WRIT-201/202, GDIV-2XX or GCIT-2XX)	3	_____	_____	_____
HALLMARK-499	Capstone Folio Workshop (Ethic-2XX, ADIV-2XX, GDIV-2XX, DBTG-300)	4	_____	_____	_____

Science Core – 15-16 credits

Pre-Medical Core

(BIOL-207) Principles of Genetics	[BIOL-104/104L]	3	_____	_____	_____
(BIOL-207L) Principles of Genetics Lab	[BIOL-104/104L]	1	_____	_____	_____
(BIOL-221) Microbiology	[BIOL-104/104L]	3	_____	◆	_____
(BIOL-221L) Microbiology Lab	[BIOL-104/104L]	1	_____	_____	_____
(BIOL-413) Pathology	[BIOL-202 and/or BIOL-303]	4	_____	_____	_____

Dedicated Pre-Medical Electives (3-4 credits) select one from

Fall Term: Select either ECBIO-319, BIOL-209◆ BIOL-303, BIOL-307# or SCI-300

Spring Term: Select either BIOL-204/L, BIOL-315◆, BIOL-401, CHEM-405, BIOL-302#

()	_____	3/4	_____	_____	_____
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Free Electives – 9-12 credits (may be used towards Public Health, Psychology, Genetics, Business or Chemistry minors)

()	_____	3	_____	_____	_____
()	_____	3	_____	_____	_____
()	_____	3	_____	_____	_____

TOTAL CREDITS: 126-132 credits

◆ Writing intensive or writing specific courses *Prerequisites are listed after the course name in parenthesis.

Genetics courses that may be used as Pre-Medical Studies Electives **OR** in the Genetics minor but **NOT BOTH**

Fundamentals Courses: (these courses do **not** count toward graduation requirements)

WRTG-099	Fundamentals of College Writing (placement by exam)	3	_____	_____	_____
MATH-099	Fundamentals of College Mathematics (placement by exam)	3	_____	_____	_____
READ-099	Fundamentals of College Reading & Study Skills (placement by exam)	3	_____	_____	_____

Surplus credits not used towards degree requirements

_____	_____	_____	_____	_____	_____
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Please note Jefferson University residency requirement:

Jefferson University has a residency requirement of 60 credits for Day Division students. Students must take a minimum of 60 credits – 12 credits must be within the major core; 6 credits must be in College Studies in order to be eligible for a B.S. degree.

This form should be used as a worksheet in conjunction with the catalog. Please refer to the Jefferson University catalog for questions regarding curriculum and academic policies.

Major Requirements – Total Credits 126-132

I. College Studies Courses	51
WRIT101 Writing Seminar I	3
FYS -100 First Year Seminar	1
CHEM-103, CHEM-103L Chemistry I*	4
BIOL-103, BIOL-103L Biology I*	4
PHYS-201, PHYS-201L Physics I*	4
MATH 101 Calculus I	4

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MATH 112 Calculus II	4
DBTU-114 Debating U.S. Issues	3
ADIV-2XX American Diversity	3
GDIV-2XX Language or Global Diversity	3
WRIT-201 Writing Seminar II Multimedia Communication	3
ETHIC-2XX Ethics	3
ISEM-3XX Integrated Seminar	3
GCIT-2XX Global Citizenship	3
DBTG-300 Debating Global Issues	3
HALLMARK-499 Capstone Folio Workshop	3
* <i>Courses included in both College Studies and Core Prerequisite categories</i>	

II. Core Courses 57

Science

BIOL-104 Biology II	4
CHEM-104, 104L Chemistry II	4
CHEM-201, 201L Organic Chemistry I	4
CHEM-202, 202L Organic Chemistry II	4
PHYS 2-3, 203L Physics II	4

Pre-Medical Studies Core

BCHEM-312 and 312L Biochemistry I	4
BCHEM-313 and 313L Biochemistry II	4
BIOL-201 and 201L Anatomy and Physiology I	4
BIOL-202 and 202L Anatomy and Physiology II	4
BIOL-221 and 221L Microbiology	4
BIOL-207 and 207L Principles of Genetics	4
BIOL-413 Pathology	4
BIOL-493 Preceptorship I	3
BIOL-494 Preceptorship II	3
STAT-301 Biostatistics	3

IV. Advanced Pre-Medical Studies Electives (select 1) 3-4

BIOL-204, 204L Cellular Biology	4
BIOL-209 Medical Botany	3
BIOL-302 Medical Genetics	3
BIOL-307 Developmental Genetics	3
BIOL-303 Histology	4
BIOL-315 Immunology	3
BIOL-401 Molecular Biology	4
CHEM-405 Advanced Organic Chemistry	4
ECBIO-319 Oceanography	3
SCI-300 Basic Pharmacology	3

V. Free Electives/Minor 15-20

<i>PROGRESSION CRITERIA</i>

Students in the Pre-Medical Studies Major must meet the following criteria to remain in the Major and progress to graduation. They will be evaluated at the end of each year by the Pre-Medical Studies Subcommittee consisting of

Dr. Diana Cundell, Professor of Biology, Program Director and Clinical Coordinator for Pre-Medical Studies and Pre-Medical Studies Committee Chair

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Dr. Jeffrey Klemens, Assistant Professor of Biology and Biology Program Director

Dr. Katherine Mickle, Assistant Professor of Biology, Assistant Pre Medical Studies Program Director and Coordinator of the Anatomy and Physiology Program

Dr. Matthew Milkevitch, Associate Professor of Biology, Chemistry and Biochemistry Program Director

Students' annual performance will be evaluated in the following areas:

1. Academic- CGPA and Core Prerequisite course GPA using above listed standards.
2. Professional Behavior- Students are expected to follow all policies outlined in the Jefferson University Student Handbook including those pertaining to academic honesty. Infractions such as forgery, plagiarism, copying tests, and cheating on examinations will not be tolerated.
3. Professionalism- Evaluated by review of the letters of reference and discussions with faculty. Pre-med students need to exhibit a high level of maturity and self control even in highly stressful situations. Team work is an essential component of all health care professions and involves an ability to display diplomacy, leadership and professionalism. Students must be appropriately responsive to lawful requests from their instructors and University officials. Students shall not display disruptive or obstructive behavior at the University or its affiliates.

Freshman Year

- Students must have a cumulative grade point average (CGPA) of **2.75** or above upon completion of the spring semester of their freshman year.
- Students must have a combined GPA of **2.75** or above in all Math and Science Core Courses upon completion of the spring semester of Year 1.
- Students must obtain a grade of “C” (2.0) or above in all Math and Science Core Courses.
- Students must pass all “credit/ no credit” courses.
- Students entering with advanced placement credit for Biology I only **MUST** take both Biology I and Biology II. This is a College of Science, Health and Liberal Arts policy.
- Students must meet with their academic advisor at least once per semester and this visit documented in their advising file. Year 1 students are advised by the Learning and Advising Center.

Sophomore Year

- Students must have a cumulative grade point average (CGPA) of **3.00** or above upon completion of the spring semester of their sophomore year.
- Students must have a combined GPA of **3.00** or above in the Science and Pre-Medical Core Courses upon completion of the spring semester of Year 2.
- Students must obtain a grade of “C” (2.0) or above in all Core Prerequisite Courses.

Sophomore Year (contd.)

- Students must pass all “credit/ no credit” courses.
- Students must have completed at least two of the Pre-Medical Studies Core Courses by the end of the spring Semester of Year 2.

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- Students must obtain three satisfactory letters of reference during their sophomore year, on the **approved** forms (Appendix C of this handbook), from the following categories of Jefferson University faculty: 1) two from science faculty (Biology, Chemistry) and 2) one from any faculty. These must be submitted by **May 1st** of the sophomore year.
- Students must meet with their academic advisor at least once per semester and this visit documented in their advising file.
- Students must have the approval of the Pre-Medical Studies subcommittee to proceed into the junior year. Those who have successfully completed their freshman and sophomore years and who display the attributes above will be placed with appropriate preceptors to perform the two summer Preceptorship courses between their sophomore and junior years.

Junior Year

- Students must have a cumulative grade point average (CGPA) of **3.00** or above upon completion of the spring semester of Year 3.
- Students must have a combined GPA of **3.00** or above in the Science and Pre-Medical Studies Core Courses upon completion of the spring semester of Year 3
- Students must obtain a grade of “C”(2.0) or above in all Science and Pre-Medical Studies Core Courses.
- Students must pass all “credit/ no credit” courses.
- Students must have completed at least 5 of the Pre-Medical Studies Core Courses by the end of the spring Semester of Year 3.
- Students must meet with their academic advisor at least once per semester and this visit documented in their advising file.
- Students should take the Medical College Assessment Test (MCAT), Graduate Record Examination (GRE) or appropriate accreditation exam for their chosen area of healthcare (see pages 12, 13 and 14 of this packet) and submit the results to the Pre-Medical Studies Coordinator prior to the end of the fall semester of Year 4.
- Students must obtain three satisfactory letters of reference during Year 3, on the **approved** forms (Appendix C of this handbook) from the following categories of Jefferson University faculty: 1) one from science faculty (Biology, Chemistry), 2) one from the Preceptorship Coordinator and 3) one from any faculty. These must be submitted by **May 1st** of Year 3.
- Students must have the approval of the Pre-Medical Studies subcommittee to proceed into the senior year. This committee will evaluate the student’s performance in the same areas as for sophomore level students (see page 7-8 of this handbook) and will include the students’ performance during their preceptorship courses as an indicator of their success as a health care professional

MAJOR DISMISSAL

Students who do not meet the above requirements for progression and have a G.P.A of less than a 2.75 after the **freshman** year or 2.9 after the sophomore or junior year will be dismissed from the Pre-Medical Studies Major.

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They may be able to remain at the University and choose another major provided they meet the general University academic standards listed in the Student Handbook.

Should a student not willingly leave the major who does not fulfill its requirements, they should be aware that the Pre-Medical Studies Committee will be unable to complete any satisfactory recommendation letters for them to enter medical or graduate school as the entry criteria for these schools match the 3.0 minimum requirement of the Pre-Medical Studies Major.

Three majors are the suggested alternative tracks for students still wishing to remain in healthcare fields. These are excellent preparations for allied health care and also provide students with experiences that will suit them to their chosen careers: -

Health Sciences

Graduates from the BS in Health Sciences will have the necessary preparation in science, psychology, and the liberal arts to successfully gain admission into and complete a graduate program for many allied health professions. The curriculum includes a strong foundation of natural science courses combined with human sciences, psychology, and unique practical and clinical experiences. Each student is required to complete an extensive volunteer and shadowing experience as part of their coursework. Students are encouraged to explore a variety of healthcare opportunities by shadowing and gaining patient contact at a variety of area hospitals and clinics.

Biology

The Bachelor of Science in Biology at Jefferson University affords students opportunities to pursue careers or graduate and professional study in disciplines as diverse as biotechnology, genetic counseling, pharmaceuticals, animal care, physical therapy and cancer research. Most students hone their analytical skills through research with faculty on campus or at other institutions through internships, and many present their work at professional society meetings or publish in scientific journals.

Biopsychology (Pre-Medical Track)

The Bachelor of Science in Biopsychology integrates psychology and the natural sciences to provide a fuller understanding of the biological basis of behavior. The Biopsychology major is a science-based curriculum designed to prepare students for medical school, direct entry into medical/pharmaceutical research, or graduate programs in animal behavior, neuroscience, and occupational therapy. Students will complete a common core of courses in psychology and science and select one of three concentration tracks: Animal Behavior, Graduate Study or Pre-Medical Studies.

PROBATION

A one semester probationary period may be recommended in the case of **junior** students who are between a 2.9 and 3.0 and required to repeat a maximum of two courses in order to achieve above a 3.0 G.P.A. Junior students who meet the CGPA standard and the Core Course GPA standard, but get a grade lower than a “C”(2.0) in a Core Course would need to repeat that course and receive a grade of “C”(2.0) or higher to progress to the final year of the Pre-Medical Studies Major.

ADVANCED PLACEMENT

Students may receive advanced placement credit per the University transfer credit and advanced placement policy. Students entering with high school advanced placement credits for College Studies courses should take any additional elective, but should speak to their academic advisor.

TRANSFER CREDITS

Students should take all Science and Pre-Medical Core Courses at Jefferson University unless given special permission to take these at an outside college/university by the Pre-Medical Studies Major. You must request approval to take any Core Course at an outside college/university in writing to the Pre-Medical Studies Program Director, Dr. Diana Cundell.

ACADEMIC ADVISING & STUDYING

Freshman students receive academic advising from the Academic Success Center and all other students will be advised by Dr. Diana R. Cundell or Dr. Kathryn Mickle. Students must meet with their faculty advisor at least one time per semester to review their progress and advise them on their academic schedule. It is the student's obligation to arrange this appointment.

Students are encouraged to meet with their advisor more frequently if they feel they are having problems academically. It is desirable to identify problems at an early stage and bring these to the attention of your advisor so that remedies can be developed and implemented. The Academic Success Center, senior student tutoring, and faculty assistance are available to help students experiencing difficulty. It is the responsibility of the student to request help and to initiate referral to these sources.

Students are encouraged to form and utilize study groups. The quantity of work involved makes well-organized time management and study skills essential. The Major recommends a scheduled daily study routine in an environment with minimal distractions. "Cramming" is not recommended. Some students find it helpful to tape lectures and listen to them in the car or again at home.

ATHLETICS

Participation in organized athletics is possible in the Pre-Medical Studies Major but may be especially challenging in the junior and senior years. The GPA requirements in all years make well-organized study habits essential. Due to these challenges it is advised that you inform your academic advisor and coach early in the year to improve coordination. Students who find it necessary to withdraw from athletics to maintain their GPA should be aware that this will affect their athletic scholarship financial aid status.

PRECEPTORSHIPS

The preceptorship experience is a unique opportunity designed to enhance the student's knowledge, technical skills and problem solving abilities within the Biomedical Science realm. These studies will be performed off campus under the supervision of biomedical professionals and other practitioners in the medical sciences, previously approved by the Pre-Medical Studies Program Director, Dr. Diana Cundell. Each student will be asked to fulfill two such preceptorships as part of the Pre-Medical Core component of the Pre-Medical Studies curriculum. Preceptorships are designed to be taken as summer classes between the sophomore and junior years, although the course will also be offered during the spring and fall semesters.

Students will be required to complete a minimum of 54-hours, preferably as six one-week periods of nine hours per week. During the preceptorship period, students are expected to keep a log book of their experiences to be used in the execution of a final 3-5 page report on some aspect of the experience that most impressed them. Guidance on a choice of topic for the final report should be sought from either the Pre-Medical Studies Program Director within the first three weeks of beginning the preceptorship.

The minimum science G.P.A. for eligibility for preceptorships is set at 3.0, unless extenuating circumstances exist. In addition, although preceptorships are aimed at students who have completed their sophomore year and who meet the G.P.A. entry criteria at this point, an exceptional freshman student (science G.P.A. of above 3.3) may also be invited to enroll.

Students enrolling for preceptorship experiences, especially those involving children's hospitals (Children's Hospital of Jefferson, St. Christopher's Hospital) or those in the Albert Einstein Hospital Network, will be required to undergo medical clearance which may not be covered by all insurance packages. Should this occur, Jefferson University has an arrangement with Roxborough Memorial Hospital that would provide the necessary measurements of vaccine titers and PPD analyses at a reduced cost. You are advised to contact Student Medical Services or Dr. Diana Cundell for assistance in this matter

NATIONAL ASSESSMENT EXAMS; MEDICAL COLLEGE ASSESSMENT TEST (MCAT) AND GRADUATE RECORD EXAMINATION (GRE)

Students need to complete either the GRE or MCAT and submit their scores to the Pre-Medical Studies Major Coordinator, prior to starting Year 4. Students interested in careers in allied health fields such as dentistry, pharmacy, podiatry and optometry also require to complete specialized exams during this time (see page 11 and 13-14 of this handbook for further details). Applications and information on these exams can be obtained from the Graduate Admissions or Career Services offices as well as from the online sources listed in this handbook.

APPENDIX A – TEN FREQUENTLY ASKED QUESTIONS

1. What are medical schools looking for in a successful applicant?

Three major attributes. Firstly, academic excellence is the first essential attribute for any student wishing to enter the health care professions. Currently, successful applicants to allopathic medical schools should aim for a science grade point average (G.P.A.) of 3.5 and above depending on the school. Secondly, students need to perform well on a nationally standardized exam called the Medical Colleges Admissions Test or MCAT, which is designed to predict how well students will fare under the medical school curriculum. Thirdly, a successful applicant should have qualities, other than academics, that they excel in. Extracurricular activities such as a sport or hobby are looked on favorably as are experience in healthcare and service as an organizational leader.

2. What is the MCAT and how well do I need to perform on it to get to medical school?

MCAT is held online 25 times per year with results available about six weeks later. The test currently consists of four components; verbal reasoning, physical sciences, biological sciences and a section on social sciences/psychology. Current statistics indicate that the average accepted score for students was a 509 in 2016. This corresponds to between a 50th (505) and 75th (514) percentile for all those taking the exam. Students may also opt to take prep courses such as Kaplan. Jefferson University is now an officially recognized site for the Kaplan Prep Test Course, which runs from late November until April each year during the evenings. This is an important preparation step as statistics show that more than 90% of successful applicants to medical school have taken either the Kaplan or Princeton MCAT prep courses. Students in the Pre-Medical Studies Major receive a subsidized rate for the on-site Kaplan prep course and in addition, five scholarships will be awarded each year to the most worthy students wishing to take the prep course. More information about can be obtained by accessing the Kaplan website at <http://www.kaptest.com/>.

3. When and how should I apply to medical school?

Students should begin the application process to medical school in their senior year. There are about one hundred and twenty-five Medical Schools in the United States and the majority of them subscribe to the American Medical College Application Service (AMCAS). A student applying sends one set of references and transcripts to this service and then indicates which schools they would like them sent to. AMCAS can also be designated to receive the student's MCAT scores and send them to each selected school. More information about AMCAS can be obtained on-line at <http://www.aamc.org>. It is important to note that ALL applicants to medical school will receive what is termed a "secondary". This should be completed with care and consideration since it allows students to talk more about what sets them apart than can be put in the original application. Depending on the number of medical schools you have applied to, completing these secondary applications can be a very extended process and it is strongly suggested that you investigate each school and program thoroughly and make each secondary as unique as possible.

4. How much does it cost to take the MCAT and apply to medical school?

Prep courses to take the MCAT are around \$1500 with the exam itself costing \$200. AMCAS charges an upfront fee of \$150 plus \$35 per school. Jefferson University is now an officially recognized site for the Kaplan Prep Test Course, which runs from late November- April each year during the evenings. More information about the course can be obtained by accessing the Kaplan website at <http://www.kaptest.com/>. In addition, five scholarships will be awarded each year to students wishing to take the prep course.

5. Is there a difference if I apply to a medical school in another state?

Some schools primarily accept in-state candidates e.g. about 40% of medical students at UMDNJ are from New Jersey but in most cases around 10% of students are in-state. Tuition costs may be different for out-of-state residents for some schools; to make sure check on the school's website.

6. How many students does each medical school accept?

Most schools have places for between 100 and 250 students but may receive 2,000-8,000 applications for those places. This means that you need to be patient in hearing from the schools. Also bear in mind that competition for each seat is intense and many students with good G.P.A. and MCAT scores will not be accepted. The importance of the secondary application cannot also be understated here. When applying to medical school check the ratio between acceptances and applicants and always include a “safe” school i.e. one with a higher number of successful applicants.

7. What is the difference between allopathic and osteopathic medicine?

The pattern of study for both schools is the same with the first two years spent on basic science and the third and fourth year on clinical rotations. Both types of doctors can specialize in the same areas of medicine and are pretty much indistinguishable in a hospital or general practice setting. The main difference between an allopathic and an osteopathic doctor lies in philosophy and use of manipulation. Osteopaths believe that the body has intrinsic healing mechanisms so that patient health involves the whole person. In addition, osteopathic physicians may use manipulation of bone or soft tissues to promote health. Currently, there are twenty osteopathic schools in the U.S. and although their criteria for entry are generally slightly lower (G.P.A. 3.45, MCAT scores in the 50th percentile or higher) this pattern is changing for some schools e.g. PCOM in Jefferson. Osteopathic schools are slightly cheaper in terms of tuition and fees (\$20,000-\$30,000 per year). Jefferson University has articulation agreements with two local osteopathic schools PCOM and LECOM and also with one of the “big four” allopathic Caribbean Schools, St. George’s University. Under the agreement five Pre-Medical Studies students, who will be identified in their sophomore year as demonstrating a significant appreciation for the osteopathic/allopathic credo as well as strong academic prowess, will be earmarked for acceptance to PCOM/St. George’s University upon graduation as long as they continue to meet the affiliation criteria. Students will still submit an official application but will effectively be already in the acceptance pool using this system. The LECOM agreement is different in that it is an early acceptance program (EAP) in which students apply to this institution either directly from high school or before the end of their first semester in the sophomore year. Further information about all these agreements can be obtained from Dr. Diana Cundell.

8. What other things should I think about in choosing which medical school to apply to?

Being at medical school for four years anywhere sounds like a great prospect but, just like your undergraduate choice of Jefferson University, it is important to consider the size of the school, its location and mostly what it “feels like” to be there. The American Academy of Medical Colleges (AAMC) produces a book “*Medical School Admission Requirements*”, which may help narrow down suitable institutions. In addition, most interviews include a tour of the campus, which should allow time for questions about the school and its neighborhood.

9. How much does medical school cost?

Medical school is expensive, costing from \$30,000-50,000 per year of study for tuition and fees alone. There are loans available to help with the tuition including the Federal Stafford and Consolidation programs. More information on these and other financial alternatives can be found on-line at

<http://www.aamc.org/students/medloans/start.htm>.

10. Are there other ways to pay for medical school?

Yes, the U.S. Forces including the Army and Navy will pay for 100% scholarships to medical school (along with tuition, books, a monthly stipend, and all fees paid) to qualified applicants. These students are commissioned as Second Lieutenants in the US Army while in medical school and promoted to Captain immediately once they graduate. For more information on the U.S. Army Health Professions Program (HPSP) go to <http://www.healthcare.goarmy.com> or contact 1-800-US-ARMY.

APPENDIX B – OTHER HEALTHCARE CAREERS

Many opportunities exist to become a health care professional. Major areas that many Pre-Medical Studies graduates enter are dentistry, optometry, pharmacy, physical therapy, podiatry, and veterinary medicine. Some important aspects of each career and places to go for additional information are summarized below. Students interested in careers in Midwifery, Occupational Therapy or as Physician Assistants should consider our current programs at Jefferson University. For more information on Jefferson University Graduate Programs go to http://www.philau.edu/schools/ssh/grad_programs/.

Audiology (3.2-3.4 minimum G.P.A.) focuses on testing of hearing and the areas of balance and related disorders. Audiologists typically work with hearing impaired patients and are able to diagnose, treat and hearing loss issues including advising on cochlear implants and hearing aids. They usually work with pediatric and geriatric patients. Currently there are nearly 70 Aud. D. programs in the United States, the closest one being Salus University.

Chiropractic (2.5-3.3 minimum G.P.A.) focuses on the impact that bone, muscular and neurological disease has on the general health of the patient. The approach is primarily holistic and drug-free and focuses on changing an individual's lifestyle and nutritional habits to promote natural healing processes. Chiropractors use traditional diagnostic techniques including X-rays and blood tests and will refer patients to other health practitioners when necessary. Most are in private and independent practices and doctorates in chiropractic medicine include extensive coursework on how to manage and establish a practice. Students interested in this field should be self starters who like to interact with people and have a strong, positive personality. Currently there are 56 chiropractic schools in the country, none of which require an entrance examination. It is also important to note that Jefferson University has a "3+3" agreement with Logan University, the oldest chiropractic school in the country, and those aiming for this field will be guided in their course selections by Dr. Cundell, who is the liaison for this program. Further information on the 3+3 agreement with Logan can be obtained by going to http://www.logan.edu/articulation_agreements/philau_home.asp

Dentistry (3.3-3.5 minimum G.P.A) focuses on the mouth and facial areas and the majority of graduates go into private practice. Responsibilities include cleaning of teeth and checking for possible oral problems. Twenty percent of dentists specialize in endodontics, oral surgery, oral pathology, periodontics, orthodontics, or public health dentistry. Currently there are between 2 and 4 dental schools per state, the closest to Jefferson University being located at the Temple University Campus. Most dental schools require students take the dental admissions test (DAT), a four part examination similar in subject matter to the MCAT, which is held annually in March or April. Successful applicants should expect to score 19 and above on the DAT. For more information go to <http://www.dental--schools.com/>. It is also important to note that Jefferson University has a "4+4" agreement with LECOM for dental school. Further information may be obtained from Dr. Diana Cundell.

Optometry (3.1-3.4 minimum G.P.A.) focuses on the examination, diagnosis, treatment and management of diseases and disorders of the eye and associated structures. Most optometrists are in general practice, but may specialize in contact lenses, geriatrics and occupational vision (to protect and preserve workers' vision). Some states also allow optometrists to perform corrective surgery. Currently there are 17 schools in the United States, the closest being Jefferson College of Optometry. Students interested in becoming optometrists should take the Optometric Admissions Test (OAT) a four part examination similar in subject matter to the MCAT, which is held in February and October. Successful applicants should expect to score between 317 and 358 on the OAT. For more information go to <http://www.aaopt.org/>.

Pharmacy (3.0-3.7 minimum G.P.A.) focuses on understanding and monitoring prescription medications and is an important part of health care management. Currently, many patients ask their pharmacist about existing conditions before going to their doctor. There are 2-4 pharmacy schools per state, the nearest to Jefferson University being part of the Temple University Campus. The doctor of pharmacy (D. Pharm. or Pharm. D.) degree is a 4 year program and includes courses in pharmaceuticals, medicinal chemistry and practice management. Students also

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perform rotations in a variety of outpatient and inpatient settings. Students interested in becoming pharmacists should take the Pharmacy College Admissions Test (PCAT) a four part examination similar in subject matter to the MCAT, which is held in three times a year. Successful applicants should expect to score 350 and above out of a possible 500 on this exam. For more information go to <http://www.pharmcas.org/>. Jefferson University has an early acceptance program (EAP) agreement with LECOM for Pharmacy and a 3+4 agreement with Thomas Jefferson University. Under these agreements Pre-Medical Studies students, identified in their sophomore year as demonstrating a significant appreciation for the pharmacy credo as well as strong academic prowess, will be earmarked for acceptance upon graduation as long as they meet the affiliation criteria of GPA and, for Thomas Jefferson the PCAT score. Students will submit an official application but will effectively be already in the acceptance pool using this system. Further information about this agreement can be obtained from Dr. Diana Cundell.

Physical Therapy (3.5-3.8 minimum G.P.A.) this area of medicine involves interacting with patients injured during an accident or suffering with a progressive medical condition to help regain motor function. Physical Therapists also help train amputees to walk with prostheses and are involved in the care of stroke victims. Most practitioners work in rehabilitation centers and in hospital settings. There are between 3 and 5 physical therapy schools per state, the closest to Jefferson University being located at Temple and Thomas Jefferson Universities. Students interested in becoming physical therapists should check with the school as to whether they require a GRE scores. Many schools also require an interested student to have shadowed and volunteering up to one hundred hours and to possess a valid CPR certificate. For information go to <http://www.physicaltherapy.com/>.

Podiatry (3.0-3.2 minimum G.P.A.) allows licensing to prevent, diagnose and treat diseases and disorders of the foot and ankle up to but not including the knee. Interestingly, 90% of illnesses initially show changes in this area so it is an important component of the disease process. Podiatrists perform physical examinations, biopsies and can prescribe medications. Many are involved in sports and geriatric medicine, where they work alongside and are not distinguished from experts in orthopedists. Currently, there are 7 podiatric schools in the United States, the closest to Jefferson University being located at the Temple University Campus. Students interested in becoming podiatrists should take the MCAT exam and need to score in the range of 20-26 for acceptance to one of these schools. For more information go to <http://www.aacpm.org/>.

Veterinary Medicine (3.35-3.6 minimum G.P.A.) focuses on all aspects of health in non-human patients including diagnosis, pharmaceuticals and surgery. There are currently 27 veterinary schools in the United States, the closest to the Jefferson University Campus being located at the University of Pennsylvania. Veterinary school graduates may focus in a variety of areas after taking a further 2-3 years internship in fields ranging from exotic small animals to radiology and anesthesiology. Most schools expect entering students to have taken the general record exam (GRE) and scored in the range of 1700-1900. For more information go to <http://www.aavmc.org>. Jefferson University has an articulation agreement with St. George's University, which is recognized as one of the "big 4 Caribbean Schools). Under the agreement five Pre-Medical Studies students, who will be identified in their sophomore year as demonstrating a significant appreciation for the veterinary medicine credo held by St. George's as well as strong academic prowess, will be earmarked for acceptance to St. George's upon graduation as long as they continue to meet the affiliation criteria. Students will still submit an official application but will effectively be already in the acceptance pool using this system. Further information about this agreement can be obtained from Dr. Diana Cundell.

APPENDIX C- RECOMMENDATION FORM

STUDENT

NAME: _____ **ID NUMBER:** _____

I hereby voluntarily waive my right of access to any information provided on this recommendation form and agree that all contents should remain confidential

SIGNATURE OF STUDENT

PRINTED NAME OF STUDENT

DATE

EVALUATOR

In order to ensure confidentiality, check that the applicant has signed the waiver prior to completion of the evaluation form. Following completion, return the form to the student in a sealed envelope, which has been signed across the flap.

Please check or shade the box which best reflects the student’s abilities in each of the following areas. If there are areas for which there is no available frame of reference, check the N/A symbol.

	N/A	POOR	AVERAGE	GOOD	EXCELLENT
Intellect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oral communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Written communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Problem-solving skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analytical ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Creativity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teamwork	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Self-motivation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Empathy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reliability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maturity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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For any areas that were checked as “average” or “poor” above, please provide details:

Additional comments: _____

Overall Evaluation of the student (please check one)

- Excellent
- Good
- Average
- Poor

NAME: _____

TITLE: _____

ADDRESS: _____
Street City State Zip code

PHONE NUMBER: _____ E-MAIL: _____

SIGNATURE OF EVALUATOR

PRINTED NAME OF EVALUATOR

DATE

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I attest that I have received, read, and fully understand the Jefferson University Pre-Medical Studies Major 2018-2019 Freshman and Transfer Information Handbook including Progression Criteria and agree to comply with the provisions listed in it.

Signature

Date

Print Name