HANDBOOK FOR PRE-VETERINARY STUDENTS
AT
NORTHERN MICHIGAN UNIVERSITY

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This document has been developed for students at Northern Michigan University who are interested in the field of veterinary medicine. It specifically emphasizes the requirements that are necessary for application to Michigan State University College of Veterinary Medicine because most NMU students are Michigan residents, and Michigan residents typically will apply there. However, the general principles apply to all veterinary medical schools.

Requirements may differ among schools. The Association of American Veterinary Medical Colleges (avma.org) provides information about individual veterinary schools at applytovetschool.org. It is never too early to research program-specific requirements that need to be addressed while you are an undergraduate. Additional helpful information can be found in the *AAVMC Veterinary Medical School Admission Requirement Handbook* (Purdue Press). In addition, students should contact those veterinary medical schools that interest them for further information regarding admissions requirements and optimal times to visit. Veterinary schools are eager to ensure that interested students receive up-to-date information about their schools.

First steps to success:

1. Be prepared for a higher level of academic expectations in college. Do NOT expect it to be like high school. You will need rigorous study skills to succeed now and later.

2. Budget and manage your time effectively. Your studies and class preparation must come first. Work and extracurricular activities come second.

3. Begin making a plan for gaining shadowing opportunities with local vets (ideally in your home town during breaks from NMU, though several local Marquette-area vets also offer shadowing opportunities). Reach out to vets in person. Bring a printed cover letter and resume to leave at the front desk if the vet is not available to speak to you. Follow up after a few days if you have not received a response. Be respectful but persistent. Keep at it until you get either a "no" or a "yes". Don't take silence as an answer.

4. Though coursework and vet shadowing are top priorities, vet schools are interested in well-rounded applicants. Participation in extra-curricular esearch is becoming a key factor for an acceptable veterinary school applicant. Reach out to Biology Department faculty to learn about their respective research programs and explore the potential for working in their labs. Start this conversation early in your career at NMU. To get the most out of research experiences, you will want to be able to participate over the course of several semesters. Research opportunities at NMU may not perfectly fit the picture that you have of your current interests, but be open to the possibility that you might discover an unexpected interest in new and exciting research topics.

5. Be alert to your need for academic help and get it immediately if you find yourself struggling in coursework. Seek out professors, teaching assistants, and tutoring services. Form or join a study group with other academically motivated students. The NMU Pre-veterinary club can also assist in facilitating tutoring possibilities.

6. Develop good decision-making skills. This means gathering information from reliable sources, seeking advice and giving careful consideration to potential consequences of your decisions. Your advisor will provide assistance, but ultimately YOU are responsible for tracking down the information that you require and for making decisions that set you up for success in the future.

7. Develop a social network that is supportive and not a drain. The NMU Pre-veterinary Club provides a great way to connect with similarly-motivated students. Participate in activities that help you feel at home and comfortable while you are at NMU.

Some NMU sources for information/help:

1. All campus tutoring. 111 H Learning Resources Center. Phone: 227-2618
2. Mathematics tutor lab. 2100 Jamrich.
3. Academic and career advisement center. 3302 Hedgcock. Phone: 227-2971
4. Counseling center. Wellbeing Center. Phone: 227-2980
5. Residence hall staff
6. Pre-vet advisor: Dr. Kurt Galbreath email: kgalbrea@nmu.edu
7. NMU Pre-veterinary Club

Your decision to prepare for a career in veterinary medicine should be based on as much information and experience as possible. In addition to information that you acquire from the pre-vet advisor, club, and from the veterinary schools that you focus on, additional important input comes from practicing veterinarians. Talk openly and honestly with them about the demands, rewards, requirements, and opportunities in veterinary medicine. Careers include those in:

- private general practice (companion animals, exotics, food animals) in rural, urban or suburban settings,
- private specialty practice (ophthalmology, surgery, radiology, oncology, etc.),
- teaching and research in private, academic, and/or government agencies (food safety, epidemiology, public health, wildlife health management, development of diagnostic tests, virology, immunology, etc.)

GETTING STARTED

Your first semester at NMU will be full of information and new experiences and it can be a challenge to many students. With that in mind, you must take all appropriate actions to be sure you get off to a good start. You will be adjusting to a completely new environment, both academic and personal, and your success will in part depend on how quickly you can make this adjustment.

Studies

Your current study, test taking and time management skills may have worked well in high school, but they may be insufficient to handle the rigors of college-level courses. College students are expected to understand, assimilate, synthesize, integrate, correlate, and use course content - not simply memorize information. You can improve your skills in these areas by using campus resources listed earlier (All campus tutoring, Math tutoring lab, etc.), but ultimately there is no substitute for spending time with course material, asking thoughtful questions, and seeking answers.

The college workload will probably be much greater than what you saw in high school. You should expect to:

- study 3-4 hours outside class for every hour in class,
- take several major exams in each course,
- write longer papers,
- have much longer reading assignments,
- see items on exams that were not specifically discussed in lecture or homework.

All of this requires more time and depth of study than typical high school course work.

REMEMBER to seek help early if you need it.

Advising

Beginning immediately, advising conferences are scheduled by appointment each semester to discuss your current progress, projected enrollment, projected year of application to the professional program in veterinary medicine, choice of major, and any other concerns or questions you may have about your academic program.

PRE-VETERINARY PREPARATION AT NMU

All colleges of veterinary medicine establish course requirements for admission to their DVM programs in minimum credits and prescribed subject matter for the areas of mathematics, chemistry, general biology, organic chemistry, physics, biochemistry, writing, social sciences, arts and humanities. NMU offers courses that fulfill these credit and subject matter requirements. The purpose of these requirements is for students to acquire:

- knowledge of basic sciences
- understanding of social systems and cultural heritages
- ability to communicate effectively in written and spoken English
- outstanding study and time-management skills

These are minimum requirements expected of candidates for admission to a DVM program. **Most applicants accepted to professional programs have completed course work and gained experience beyond the minimum.**

The pre-veterinary track is not by itself a degree-earning program. It is a track intended to help NMU students to prepare for applying to a DVM program. "Pre-veterinary" can be declared as a major for freshmen and sophomores only. If a student has not already selected a degree-granting major by the time they reach junior standing, they must do so at that point. Many courses in the pre-veterinary track are applicable to a bachelor's degree in a number of majors at NMU, primarily in the sciences. The general studies courses in writing, social sciences and arts and humanities are university-wide requirements for a bachelor's degree in any major. The pre-veterinary track can serve as a route to more than one educational objective.

A bachelor's degree is not a requirement for admission to many DVM programs. However, as a rule, people accepted to DVM programs have exceeded the minimum course requirements and, in most cases, earned a degree. We strongly advise that pre-vet students plan to complete their bachelor's degree as they prepare for applying to veterinary medical school.

Required courses for Michigan State University College of Veterinary Medicine (see https://cvm.msu.edu/future-students/dvm/prerequisites)

English and composition
Social sciences
Arts and humanities
Math: College algebra and trigonometry is the minimum
Physics (2 semesters with labs)
Inorganic chemistry (2 semesters with labs; satisfied by Intro Chem sequence)
Organic chemistry (2 semesters with labs)
Biochemistry (1 semester with lab)
General biology (2 semesters with labs)
Animal Physiology (1 semester with lab)
Advanced biology elective (1 semester with lab at 300 or 400 level) – e.g., Genetics, Parasitology, Microbiology, Cell Biology, Immunology, Neurobiology

FACTORS TO CONSIDER IN SELECTING YOUR COURSE LOAD

Current course load:

- Do you have enough time to handle the work for each of your courses adequately?
- Could you handle a heavier load or would a lighter load be better?
- If you work, how does this time commitment affect your study time and academic performance?
- Do you commute? If so, how far?

Study skills:

- Are you studying effectively and efficiently, and performing well on tests?
- If your answer is "no", would it be wiser to take fewer credits next semester and utilize the time saved working on study and time-management skills?

Current performance in sequential courses:

- If you get a D in the first semester of a course sequence, technically you have earned credit and may enroll in the next course.
- However, the odds of doing well in the next course of the sequence should be considered based on how heavily the second course relies on mastery of material in the first.
- The presence of D or F grades in the math and science requirements on your transcript will be detrimental to your chances of admission to a veterinary school.

Course combinations:

- Is the balance between science/math and non-science courses in your schedule providing optimal time for you to achieve the best grades?
- A general guideline is to carry no more than 2 science courses per semester until you are confident that you can excel with a greater load.
- If you choose to take more than 2 science courses in a single semester, it is recommended that you plan your schedule to ensure that no more than 2 of those courses include laboratory sections.
- If it is necessary to take 3 lab-based science courses in a single semester, consider not taking a 4th course in that semester to give yourself time to focus on the science courses.
- Consider taking some science prerequisites in the summer if available (e.g., math or physics) to relieve pressure and increase flexibility of course scheduling in the fall and winter semesters

Projected year of application to the DVM program:

- Is it reasonable and feasible for you to carry the course load necessary to apply to the professional program on your desired schedule?
- Would it be wiser to project application into a later year so that your course load would not be so compressed, allowing time for additional beneficial courses, activities, and experiences?
- When will you have sufficient veterinary exposure (shadowing)?
- If you are required to take the GRE or another standardized test for the vet school that you wish to attend, when will you be prepared to take it?
- Review the section on **Application to Veterinary School** for information pertinent to these considerations.

Semesters courses are offered:

- Many courses are offered only in particular semesters. Refer to the descriptions of courses in the NMU undergraduate bulletin to determine whether or not courses are offered in the semesters you plan on taking them. Feel free to speak with faculty who teach the course of interest for additional information.

Health and personal concerns:

- If you are experiencing health or personal difficulties, it may be wise to moderate your course load to give yourself time to seek help and deal with problems.
- NMU has an excellent Counseling Center - (906)227-2980.

- The NMU CARE Team is dedicated to helping students who are struggling for any reason find the help that they need.
- The Dial HELP crisis hotline is available 24/7 for free, confidential, non-judgmental crisis intervention and referral services:
  CALL: (906) 482-4357
  TEXT: (906) 356-3337
  CHAT: dialhelp.org
- The NMU Dean of Students Office staff can provide additional resources to help students – (906)227-1700

APPLICATION TO VETERINARY SCHOOL

To be eligible for admission consideration, you **must**:

- Complete all pre-veterinary requirements.

  All pre-veterinary course requirements must be completed prior to the projected fall of DVM program entry. For many vet schools it is permissible to apply before one or two required courses have been completed as long as there is a plan for completion before entering the DVM program the following fall. However, requirements vary. **Michigan State requires ALL required science prerequisite courses to be completed prior to submitting your application (i.e., by end of summer before applying in fall)**. General education requirements for MSU must be completed by July 1 of the matriculation year.

- If required, take the Graduate Record Examination (GRE) or Medical College Admissions Test (MCAT) (check what is required by each vet school to which you intend to apply; these are not currently required for MSU, but requirements can change) no later than 3 weeks before the application deadline to allow time for scores to be calculated and distributed. Updated information on what standardized tests are required by different schools can be found through the American Association of Veterinary Medical Colleges web site.

- Submit all required application materials by the application deadline. Most schools in North America (including MSU) are using the Veterinary Medical Colleges Application Service (VMCAS) for application to schools. Vet schools in Texas use the Texas Medical and Dental Schools Application Service.

As you progress in your pre-veterinary program and project your year of application to a DVM program, you should consult the pre-veterinary advisor to verify your schedule, completion of all admission requirements, projected test dates, and application information.

CALCULATING YOUR GRADE POINT AVERAGE FOR MSU CVM

Michigan State University College of Veterinary Medicine's admission criteria include 2 separate GPAs:

Most recent 3 semesters GPA, including ALL college course work taken over the preceding 3 semesters. Average GPA over those courses must be 3.0 or better.

Pre-veterinary science GPA, including ONLY the math/science courses required for admission to the professional program. Average GPA over those courses must be 3.0 or better.

NOTE: For MSU, all prerequisite courses must be passed with a 2.0 or better (i.e., each course grade must be a C or better). If you retake a course, only the highest grade will be considered (i.e., the lower grade will be ignored; however, some vet schools average grades over multiple course attempts, so check the requirements of each school you wish to apply to).

Calculating GPA

On your transcript you will see columns for grades, course credits, and quality points. Quality points equal credits multiplied by grade. To calculate the average GPA over multiple courses, divide the total quality points by the total credits attempted.

Example: **Course**	**Grade**	**Credits**	**Quality points**
Eng. Composition	3.5	4	14.0
Algebra and Trig	3.0	5	15.0
Chemistry + lab	3.5	5	17.5
Total		14	46.5

GPA Formula = total quality points / total credits attempted

46.5/14 = 3.32

Remember that it is in your best interests to maintain as high a GPA as possible. Though the minimum GPA is 3.0, a good rule of thumb is that your science prerequisite GPA should be > 3.5 and your most recent 3 semesters GPA should be >3.7. That said, the difficulty of your academic schedule will be taken into considering by the admissions committees, such that a slightly lower GPA may not be viewed negatively if it is associated with a very rigorous class schedule.

ACADEMIC ADVISING

Your responsibilities:

1. Read and become knowledgeable about:
   - the pre-veterinary program
   - the criteria for admission to veterinary schools of interest to you

- university requirements, regulations and procedures, and majors to consider for completion of a bachelor's degree

2. Commit significant time and effort to the continuous process of planning your education and experiences.
3. Utilize all sources of information and assistance available (such as advisors, faculty, career information resources) **before** making final decisions.
4. Be well prepared for advising conferences: the more preparation, the more useful the conference will be.

Advising conferences:

The purpose of an advising meeting is to discuss

- your current progress
- a projected schedule for the next semester
- any individual questions or concerns you may have
- check in with your pre-veterinary advisor on a regular basis (at least once per year)

Your major should:

- strengthen your credentials as an applicant to a DVM program by expanding your academic knowledge, research experience, and veterinary experience.
- strengthen your preparation for the professional veterinary medical program with advanced and broader course work.
- serve as an alternative education/career pathway in case you decide against veterinary medicine or are not accepted to a DVM program.

Remember:

1. Courses in physiology, parasitology, anatomy, embryology, immunology, virology, computer science, statistics, and liberal arts are suggested by veterinary college admissions committees as valuable preparation for the professional program.
2. Some applicants to veterinary schools are not accepted; all pre-veterinary students should have an alternative career avenue via the major they choose.
3. Veterinary school admissions committees exercise NO preference for any particular majors in the process used to select candidates for admission to the professional program; thus, a non-science major is an acceptable choice.
4. It is okay to decide that a veterinary career is not right for you. College is a time of discovery, and it is common for students who enter NMU with intentions of becoming a veterinarian to discover a calling in another discipline while they are here. A career in veterinary medicine should only be your goal if you maintain a consistent passion for that path throughout your time as an undergraduate, and you can't imagine doing anything else.

Electives:

Taking elective courses allows you to

- pursue your own special interest in a subject that is not required in the pre-veterinary program.
- gain supplemental preparation for the DVM program (e.g., courses in comparative anatomy, animal

physiology, parasitology, embryology, histology, immunology, virology, molecular biology, zoology).
- explore potential majors for a bachelor's degree by taking introductory courses in fields in which you are interested.
- add balance and diversity to your activities through courses in other disciplines.

STANDARDIZED TESTS

Although MSU CVM no longer requires standardized tests in the application process, many Colleges of Veterinary Medicine require that the scores from certain national standardized tests (e.g., GRE, MCAT) be submitted as part of the application process. These requirements can change, and it is important for you to check current application requirements for the school you are interested in to be sure that you take the appropriate tests report the scores as required. The college descriptor pages found here are a good place to start, though you will also want to check each school's website directly for the most up-to-date information.

A LOOK AT WHAT IT TAKES

The class profile of applicants accepted into the DVM program at MSU accepted in the fall of 2023 is listed below. It can give you an idea of the level of excellence needed to successfully apply to a veterinary medicine program.

Total applications:	1,922
Total admitted:	115
Michigan residents admitted:	53
Non-Michigan residents admitted:	62

Mean scores of admitted applicants:	
Cumulative GPA (last 3 semesters)	3.59
Pre-vet (science) GPA:	3.36

The selection processes of the different veterinary schools are relatively consistent. Most use similar academic and nonacademic measures to select those candidates who best fit the mission of veterinary school and who have a high probability of success in the professional school curriculum. Competition for acceptance into veterinary medical school is intense. Doing well in your academic pursuits is mandatory, but not by itself sufficient. You will need to demonstrate a broad range of experiences as well as stellar academic performance to be competitive.

Need further information?

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