

UNE COM Student Research and Scholarly Activity Policies

The UNE COM has fostered and encouraged a culture of research for decades, and now enjoys robust research in the biomedical sciences (with a strong focus in the neurosciences), aging, and medical education. These further stimulated student research and scholarly activities. The UNE COM is committed to promote and support COM student research. The UNE COM has been continuously enhancing student research through adding research-related topics as required curricular activities, increasing the funding for its student research fellowship opportunities, establishing a Research-Elective Clerkship for fourth-year COM students, and providing administrative support to students who wish to pursue external research fellowship opportunities.

I. COM Curricular Requirements on Research and Scholarly Activities

1. Curriculum on Evidence-Based Medicine and Practice

Within the Osteopathic Medical Knowledge (OMK) I course that is required for all UNE COM MSI students, specific learning modules on evidence-based medicine and practice is included. This module is taught in small sections that are distributed throughout the OMKI course. The module provides students basic understanding of evidence-based medicine and practice, teaches students skills needed to evaluate publications, and introduce students to research design and various statistical analysis methods. Specific learning objectives used in this module can be found in the Blackboard courses for *Osteopathic Medical Knowledge (OMK) I and II*.

2. Year 1 and 2 Research Seminar Requirement

Starting from the academic year 2016, the UNE COM requires all MSI and II students to attend certain numbers of research seminars and UNE COM-sponsored research symposium. Below are the current policies stated in the *Osteopathic Medical Knowledge (OMK) course syllabi* for MSI and II students.

OMK I Syllabus

8. Research Seminars and Symposia:

- a. Attend at least one Research Seminar held during the semester. Research Seminars are usually on Thursdays at noon (at least once/month), although ad hoc presentations may also be designated. Prior permission from the Course Director(s) must be obtained for seminars if they are not hosted by UNE COM.
- b. Attend at least one session of the Fall or Spring Research Symposium during the Academic Year. The Fall Research Symposium is scheduled for Friday, September 22, 2017.
- c. In order to receive credit for attending a Seminar or Symposium, students must sign the attendance sheet (if applicable).

Students that attend the required Research Seminar and Symposium will receive a grade of Meets Expectations (M), those who do not attend will receive a grade of Unsatisfactory (U). Students earning a grade of Unsatisfactory (U) will also earn an Unsatisfactory (U) as part of their Professionalism assessment and may be required to meet with the Committee on Student Progress.

OMK II Syllabus

7. Research Talks, Seminars, and Symposia:

- a. Required attendance at two Research Talks or Symposia held during the semester. Research Talks are usually on Thursdays at noon or on other designated dates and times (TBA).
- b. Attend part of one Research Symposium during the academic year. The Fall Research Symposium is on Friday, September 22nd 2017 in Leonard Hall.
- c. Grading for this area is pass/fail and based on attendance.

3. Years 3 and 4 electives

Besides specific research fellowships, students may choose to complete a maximum of 6 weeks of *Research Elective* during their clerkship period (MSIII and MSIV students) as detailed in the *Clinical Training Manual*, for which they may receive academic credit. Students seeking academic credit must apply to the Associate Dean for Clinical Education for approval of the planned activity, including the project description and how the educational and evaluative criteria will be met. A requirement for completion is a written review article covering the scope of the research project, a journal article (suitable for publication), an abstract of primary research which should ultimately culminate in a poster or oral presentation at one of UNE's research forums (see below), and/or a scientific conference. From spring of 2010 to July of 2017, total of 78 UNE COM students took advantage of the research elective to gain experience in clinical research.

4. Clinical sites

During the clerkship years (MSIII and MSIV), UNE COM students are required to fulfill the research and scholarship requirement specified by individual clinical training sites. Detailed policies regarding required research and scholarship activities are described in the student manual provided by individual clinical training sites. The student training manual from the [Kent hospital, Warwick, RI](#) is one of the examples. At the Kent hospital, "All students are required to complete one scholarly/research activity annually and participate in the annual research forum. Compliance with these requirements will be monitored by the GME department" "Student participation in annual research forum will be evaluated based on effort and quality of scholarly work produced as defined by abstracts, posters and oral presentations." And students are encouraged to submit their presentations to the ACP and NEOMEN research forums, as well as national conferences.

5. UNE COM Research Honor Program

Charged by the UNE COM Curriculum Advisory Committee, the UNE COM Research and Scholarly Committee has completed the draft policy of the *UNE COM Research Honor Program*, which is expected to be in effective within a year. UNE COM students can apply to be considered for the Research Honors Program before May 1 of the end of their 2nd year of medical school. The UNE COM Research Honors Program will recognize medical students who have conducted meaningful clinical, basic, translational or medical education research and met the requirements outlined to attain Research Honors recognition. Those who graduate from UNE COM after attaining the Research Honors Designation are able to integrate the latest scientific evidence in their practice and critically evaluate their own approach to medicine/health. The objectives of the Program include 1) Encourage students to consider and test novel approaches to scientific or clinical problems; 2) Foster analytical thinking skills necessary for rational and effective decision-making in future physicians; 3) Provide an opportunity for UNE COM students to pursue research and to relate their findings to clinical scenarios; 4) Provide guidance and mentorship for UNE COM students regarding careers that integrate research and clinical service; 5) Teach the techniques of data interpretation necessary for dissemination as a presentation or publication and 6) Generate an understanding of the impact of biomedical research on patient care. Specifically, fellows are expected to obtain the entrance level knowledge and skills in clinical and/or basic science research regarding research design and development, procedural consideration, basic data analysis, author a paper suitable for presentation at a professional conference or publication, and mechanisms for presentation or publication of the paper.

6. Pre-doctoral Fellow of Anatomy and Osteopathic Manipulative Medicine(OMM)

The *Pre-doctoral Fellow of Anatomy and OMM* administered by the Departments of Anatomy and Osteopathic Manipulative Medicine is designed to expand the educational opportunities for selected UNE COM students with guided learning experiences in the areas of medical education, research, osteopathic principles and practices, and anatomy while they assist in all phases of the departments' operations. Fellows will assist in lecturing, teaching, assessing, and counseling of the first and second year students. During the year the fellow(s) provide clinical services under the supervision of faculty members and they are encouraged to develop or participate in research projects with the assistance of the basic science and/or clinical faculties. The

major goal of this fellowship program is to provide the fellow(s) with the knowledge and skills needed to significantly contribute to teaching, clinical practice and research in the area of anatomy and OMM throughout their professional careers. Since its inception in 1986, 126 COM students have enrolled and 109 fellows have graduated from this unique pre-doctoral fellowship program. In addition, the Departments of Anatomy and Osteopathic Manipulative Medicine also administered a year-long *Osteopathic Pre-doctoral Research Fellowship* for students who committed to devote one extra year from their UNE COM program to work on research projects full time. So far, 5 students participate in this program.

II. UNE COM Student Research Fellowships

All UNE COM students have opportunity to apply for [research fellowships](#), which include both internal and external fellowship programs.

1. *Peter Morgane Student Research Fellowship*

The UNE COM has established the Dean's Research Fellowship (recently renamed as the [Peter Morgane Student Research Fellowship \(PMRF\)](#)) since mid-1980's. To date, over 200 students have been supported by this fellowship program. The PMRF fellowship provides a great opportunity for all of the UNE COM students who wish to participate and obtain experience in biomedical, clinical, experiential, or translational research. Research projects can have a basic science, community health, clinical, or osteopathic orientation. Students are encouraged to find faculty mentors through seminar series, faculty presentations, research day activities, as well as various student organizations. The PMRF provides each awardee with a stipend (\$3000), funds for supplies (\$1000) and funds to defray costs of attending scientific conferences to present a PMRF project (up to \$500). All fellows are required to complete online training regarding research design and data analysis, participate in UNE COM Research Day Keynote address, and present at the UNE COM Research Day, the annual mid-winter Maine Osteopathic Association (MOA) meeting, or the NEOMEN Research Forum. All fellows are encouraged to present their work at local, regional and national meetings. The UNE COM has been able to fund six fellows each year until 2015. With the increased class size and increased interest in participating in research projects, the numbers of applications have been increasing in recent years. In response to this increase, the UNE COM secured more funding for PMRF. Together with the additional generous support from the CEN and the UNE Office of R&S, the UNE COM was able to fund 16, 20, and 21 applications in 2015, 2016 and 2017 respectively. All recipients are posted on the [UNE COM research web page](#).

2. *Carman Pettapiece Student Research Fund Scholarship*

Additional fellowships are supported through the Student Government Association of the UNE COM by funding the [Carman Pettapiece Student Research Fund Scholarship](#). This additional funding is similar in scope to the UNE COM PMRF, and both are designed to support all areas of medically oriented research conducted by UNECOM students. The Carman Pettapiece Student Research Fund Scholarship provides each awardee with a stipend (\$2000). In recent years, 8-10 applications were awarded with the Carman Pettapiece Student Fellowship each year. List of past recipients can be found [here](#).

3. *External Research Fellowships*

There has been a growing interest in gaining additional training in research by applying for extramurally funded internships/fellowships, either for a summer or a year. The UNE COM Research website publishes links to several [external research fellowships](#). The CEN web site also lists [external research funding opportunities](#) and the UNE COM students are eligible for some of these funding mechanisms. With the mentorship of UNE COM faculty, many students have received external research fellowships (not limited to the fellowships listed in above webpages). Below are some examples from recent years.

Since 2003, 265 UNE COM students mentored by faculty in the UNE COM Division of Geriatric Medicine have been awarded various fellowships in the field of aging and other specialties amounting to \$740,050 in funding for these students. Twenty-eight (28) of these students have been awarded the competitive and prestigious American Federation for Aging (AFAR) Medical Student Training in Aging Research (MSTAR) Fellowship. Past UNE COM AFAR Fellows have conducted research at institutions such as Harvard, UC San Diego, Johns Hopkins, and University of Pittsburgh; all with top-ranked geriatrics research programs. Three of the UNE COM AFAR Fellows have been awarded first place in the American Geriatrics Society Presidential Poster Session. The AFAR Fellows have accrued 47 conference presentations and a number of publications

Besides aging related research fellowships, the UNE COM students have received prestigious extramural funded fellowships in many other areas. Two of the UNECOM students were accepted into the one-year Howard Hughes Medical Institute (HHMI)/NIH Research Scholars Program, Jeremy Force, D.O. (class of 2011) (2011) and Stephanie Bissonnette (class of 2013) (2011-2012). Puthiery Va, D.O. (class of 2012) received a one-year fellowship (2010-2011) from the Fogarty International Clinical Research Scholars (FICRS) Program to work on an NIH-funded cancer epidemiology research at the Shanghai Cancer Institute. Aseef Ahmed (class of 2017), was awarded a Summer Student Fellowship by a non-profit organization, Fight for Sight to pursue eye-related basic research in the laboratory of Dr. Ian Meng at the UNE COM during the summer of 2014 (<https://www.fightforsight.org/Grants/Awardees/AwardeeProfile/profile/3219/>). More recently, Mark D. Unger (Class of 2018), received an Osteopathic Manipulative Medicine Undergraduate Research Fellowship for the 2016-2017 academic year. As part of the fellowship program, Unger will work as a research trainee under the mentorship of Andreas Beutler, M.D. and Timothy Maus, M.D. in the Departments of Oncology and Anesthesiology at Mayo Clinic in Rochester, Minnesota (<http://www.une.edu/news/2016/une-college-osteopathic-medicine-student-receives-prestigious-research-fellowship-mayo-clinic>). Timothy McLerran (Class of 2019), was granted a two-year fellowship (2014-2016) by the Sarnoff Cardiovascular Research Foundation under the sponsorship of Dr. Amy Davidoff (UNE COM Biomedical Science faculty member). Tim conducted his research at the University of California, San Diego, and helped to develop methods to rapidly scan thousands of small molecules in human blood with the goal of establish rich data repository for personalized medicine. Tim was the first D.O. student to be accepted into this extremely prestigious fellowship program. Two other UNE COM students recently received complete external summer research fellowships: Catherine Bixby (Class of 2018) was awarded with the 2015 Medical Student Anesthesia Research Fellowship provided by the Foundation for Anesthesia Education and Research's (FAER) to participate in research, training and clinical anesthesia activities at the Yale-New Haven Medical Center (<http://www.une.edu/news/2015/catherine-bixby-selected-participate-medical-student-anesthesia-research-fellowship-program>) and Daniel Greenberg (Class of 2019), MSII became the first D.O. student to be accepted into the NIH funded T35 training grant entitled "Research in Infectious Diseases, Microbiology and Immunology for Medical Students" at the University of Buffalo and Roswell Park Cancer Institute, Buffalo, NY (http://www.buffaloctrc.org/news/entries/six_medical_students_are_awarded_research_fellowships_as_part_of_t35_traini/).

Additionally, unique to the UNECOM are the two Learning by [Living immersion research programs](#): (1) Learning by Living Nursing Home Immersion that "admits" medical students into nursing homes to live the life of an elder resident for 2-weeks complete with a diagnosis and standard procedures of care; and (2) Forty-eight (48) Hour Hospice Home Immersion whereby medical students are immersed into the Gosnell Memorial Hospice Home for 48 hours to conduct patient care, family support, and post-mortem care. Both projects are based on qualitative ethnographic research methods. By August 2017, 37 students have participated in the nursing home immersion and 82 students will have completed the Hospice Home Immersion.

In summary, the UNECOM is gaining the reputation of having dedicated, passionate and outstanding student applicants for prestigious awards and fellowships, many of which are weighted heavily in allopathic medicine.

III. UNE COM Research and Scholarship Forums

To further enhance the culture of research and scholarship, particularly among the UNE COM students, the COM has been hosting an annual Research Day, recently renamed as [Research Forum](#), to provide a venue for the COM students to present their research projects (including research-in-progress) to the UNE community. All UNE COM students can submit abstract and present posters at this event. This activity has been continuously expanding over the last several years with 33 student posters presented in the UNE COM Research Day hosted on January 15, 2016 and 20 student poster presented in the UNE COM Research and Scholarship Forum hosted on September 30, 2016. To fully engage the UNE COM students: (1) All posters are judged by faculty members and awards are given to the best presentations in “Clinical Research” and “Basic Science Research”(the list of past winners can be found at <http://www.une.edu/com/research/news-events/research-forum>) and (2) The research day/research forum activity also includes a keynote speaker, and oral presentations by selected students and faculty members. Additional oral presentations by faculty and students are often arranged within the same week or month as the research day/research forum to create more excitement about this research and scholarship event among the UNE COM students. These regular research and scholarship focused events have generated tremendous interest among the UNE COM students and encouraged a steady increase in students’ participation in research and scholarship related activities, which is reflected by the ever increasing numbers of students who apply for the internal and external research opportunities. For example, the UNE COM had an average of ~40 applications for the UNE COM internal Research Fellowships (the Peter Morgane Research Fellowship and the Carman Pettapiece Student Research Fund Scholarship) within the last couple of applications cycles (2016 and 2017).

In addition, the UNE COM students have an opportunity to present their research at the [Maine Association of Osteopathic Medicine \(MOA\) annual mid-winter conference](#) (February each year in Portland, Maine), the [annual NEOMEN forum](#) (May each year at the UNE’s Biddeford campus). To encourage participation from medical students, NEOMEN underwrites funding for third-year students to attend the NEOMEN Research Forum. In 2017, 44 COM students presented total of 30 posters at the MOA mid-winter coherence and 59 COM students presented total of 53 posters (15 on research projects and 37 case reports) at the NEOMEN Research Forum. Since the academic year 2016, participation of at least one of these research and scholarship forums annually become part of the year 1 and year 2 curriculum (see the previous section on “COM Curricular Requirements on Research and Scholarly Activities”).

Further, COM students have opportunity to present at the research day-type activities within individual clinical rotation sites, such as the Graduate Medical Education Research Forum, Kent Hospital, Warwick, RI and the Eastern Connecticut Health Network (ECHN) Research Day, Manchester Memorial Hospital, Manchester, CT

IV. UNE COM Student Research and Scholarly Activities

1. Student Publication

Besides oral and poster presentations at the UNE COM-sponsored forums, many of the UNE COM students presented their work externally. Further, some of our students participated in writing up their research projects and co-authored on journal articles.

2. Overall Student Research Activities

To better capture the research and scholarship activities conducted by the UNE COM students, the Office of Recruitment, Student & Alumni Services (RSAS) started to record specifically students’ research activities by

adding a “Research” category in a self-reporting system that had been used to record all student extracurricular activities. Data gathered so far (from the UNE COM class year 2015 to current) showed a clear trend that increasing numbers of students are participating in research activities.

Self-Reported Research Activities through Co-Curricular Transcript

