UNIVERSITY OF NEBRASKA
MEDICAL CENTER
COLLEGE OF MEDICINE

SENIOR SELECTIVE HANDBOOK

CLASS OF 2016

2015-2016 ACADEMIC YEAR

FEBRUARY 2015

Office of Admissions and Student Affairs
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ONE MONTH OF A SENIOR SELECTIVE IS REQUIRED DURING THE SENIOR YEAR.

YOU MAY ELECT TO TAKE TWO SELECTIVES. HOWEVER, ANY MORE THAN THAT MUST BE CLEARED WITH DR. MacDONALD. THE ONLY POSSIBLE EXCEPTION TO THIS TWO-MONTH SELECTIVE LIMIT WOULD BE AN HONORS THESIS OR THE COMPLETION OF ONGOING RESEARCH.

THE SENIOR SELECTIVE IS NOT TO BE CONSIDERED AS A TIME TO TAKE A VACATION OR TO DO RESIDENCY INTERVIEWS.

ALL SENIOR SELECTIVES MUST BE PRE-ARRANGED BY THE STUDENT AND APPROVED BY THE INSTRUCTOR/ADVISOR BEFORE THE START OF THE SENIOR YEAR.

ONCE PRE-ARRANGED, SELECTIVES SHOULD NOT BE CHANGED THROUGHOUT THE SENIOR YEAR (if at all possible).
SENIOR SELECTIVE

The intention of the Senior Selective is to allow students to go back to an area of the basic sciences, defined as those areas that were studied during the thirteen “morning cores” that compose the first two years of the curriculum, and re-examine it from both a clinical and basic science vantage point.

Objectives to be met by all offered selections:

1. Under the direction of a basic scientist and/or a clinician, provide students the opportunity to be exposed to AND be involved in the clinical evaluation of current literature.
2. Examine an area of interest in more depth than was covered during the basic science years.
3. Under the direction of a basic scientist and/or a clinician, gain an overview of that area as it relates to the clinical practice of medicine.

Expectations for Senior Selectives:

1. Students will devote a minimum of 30 hours per week to participation in, or study of, the Selective topic.
2. Students will produce evidence of their work, of a quality commensurate with the expected rigor of this Selective, and will present that product to an appropriate group – as determined by the Selective instructor – for review.

Duration: Four weeks total

Instruction:
Taught under the direction of the basic science departments with input and assistance from one or more clinical departments

Coordinating Department:
The Department of Biochemistry and Molecular Biology will be the Basic Science Department responsible for the coordination of this selective. This will be under the direction of Dr. Richard G. MacDonald.

ALL SENIOR SELECTIVES MUST BE PRE-ARRANGED BY THE STUDENT AND APPROVED BY THE INSTRUCTOR BEFORE THE START OF THE SENIOR YEAR.

ONCE PRE-ARRANGED, SELECTIVES SHOULD NOT BE CHANGED THROUGHOUT THE SENIOR YEAR.
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**OPTION 1: TOTAL DIDACTIC**

Take a mini-class taught by one of the basic science departments. This class would be taught by a basic scientist or a clinician, preferably two faculty members, one representing each perspective. The class should focus on a specific, medically related topic. The slant would be from the basic science perspective with insights and clinical correlations provided by the clinician. During the presentation of the materials, the students would be required to examine current literature and be prepared to discuss it as to its scientific and clinical value/implications. At the end of the class, the students would be expected to provide a written summary in accordance with the expectations listed above. The discussion should indicate a familiarity with the basic literature in the field. These classes would be offered on a scheduled basis and enrollment would be limited by the faculty involved.

**OPTION 2: TOTAL RESEARCH**

Under the direction of either a basic scientist or a clinician involved in research, the student will conduct part or all of a research project, prepare the materials for presentation (paper, abstract, poster, or Power Point oral presentation) and be able to discuss the current literature related to the research project. If the project is under the direction of a basic scientist, the student should include a clinician as a consultant in order to bring clinical relevance to the project. At the end of the rotation, the student should provide a written summary in accordance with the expectations listed above.

**OPTION 3: JOURNAL CLUB DISCUSSIONS**

The student should become involved with journal club discussions held under the direction of a basic scientist with a clinician(s) involved in the group to help provide clinical relevance to the discussions. At the end of the rotation, the student should provide a written summary in accordance with the expectations listed above.
OPTION 4: ASSIST IN TEACHING LECTURES AND/OR LABS IN BASIC SCIENCE

Under the direction of a basic scientist or a basic science department, the student should prepare 2-3 hours of lecture material to be presented in a formal class setting (medical students, allied health, nurses, pharmacy students, PA students, etc.). During the preparation, the student should be prepared to discuss both the basic science and clinical implications of the materials. The student could also assist in teaching student labs. In the event that this option is taken, the student could research the literature in the area and be prepared to discuss it with their basic science and clinical advisor. At the end of the rotation, the student would provide a written summary in accordance with the expectations listed above.

OPTION 5: RESEARCH PAPER/PATIENT EVALUATIONS

Under the direction of a basic scientist and/or a clinician, of the student’s choosing, the student will select an area in clinical medicine and review the recent scientific advances that are impacting the current practice of medicine. The paper should be a critical review of the literature and be presented in a concise manner.

OPTION 6: WRITE A PBL CASE

The topic of the PBL case should be determined primarily by the interest of the student and in consultation with the Selective director. If possible, it should come from a patient seen by the student in the M3 year. The process would be overseen by a basic scientist and a clinician. It is intended that a significant portion of the student’s time will be spent researching the current literature and obtaining basic scientific material from texts and monographs on the area. Part of the process will involve time spent with the faculty members to review the literature and basic concepts with the student. The clinician will assist in making the information relevant to the clinical setting.
**INDIVIDUALIZED PROGRAM**

M-ID-763  Senior Selective Individualized Program  
Credit Hours:  4  
Number of Weeks:  4  
Available times:  Varies (July through April)  
Student Limit:  Open  
Primary Faculty:  Dr. Richard MacDonald  

If you are interested in pursuing a selective that is not offered in this handbook, permission must be granted by Dr. Richard MacDonald, Senior Selective Coordinator. Please discuss your proposal with him.

Credit under the number (M-ID-763) will only be given for an experience that is **NOT** listed in this handbook. To design your own selective, you must receive the approval of Dr. Richard MacDonald **prior** to registration.
ANESTHESIOLOGY INDIVIDUALIZED PROGRAM
(Anesthesiology uses the Individualized Program number for this Selective course. The following criteria must be met to request a selective for Anesthesiology)

M-ID-763 Senior Selective Individualized Program
Periods Offered: August through April (for 4 weeks)
Student Limit: By Arrangement
Prerequisite: Must be arranged with Melinda Murdock and Dr. Richard MacDonald
Contact Person: Melinda Murdock (402-559-4175)

Senior Selective Research 763 is an approved elective for all seniors in many departments on campus. Permission must be granted by Dr. Richard MacDonald after your proposal is approved by your selected department.

The Senior Selective Research month in Anesthesiology has certain requirements you must fulfill before you can proceed with research in the department. Therefore, your first point of contact for this selective is the clerkship coordinator, Melinda Murdock. She will explain the steps necessary to do a Senior Selective Research month in Anesthesiology. Once you have spoken with her, you will be directed to contact physicians in the department to inquire about working with them on a research project. You will need to begin this process several months in advance of your rotation to make sure you have proper regulatory training and your requirements for human research training have been met (CITI Training, added to IRB applications, etc.). Your training is required before you can help with any research. Failure to fulfill these requirements will result in a mandatory drop of the course in Anesthesiology.
BIOCHEMISTRY AND MOLECULAR BIOLOGY

M-ID-728  Development of PBL Cases
Credit Hours: 4
Number of Weeks: 4
Available times: July through February, excluding December
Student Limit: Variable
Primary Faculty: Dr. Richard MacDonald

This selective is designed to provide an opportunity for a student to review knowledge of basic sciences as it applies to a particular clinical case. The focus of the activity should be on all of the basic science mechanisms and explanations for the signs and symptoms in a selected patient and on the disease process itself. The object of the selective is a case for use in problem-based learning sessions for first- or second-year students in the medical curriculum.

Initially, the student should select a disease of interest, one manifested by a patient encountered during clinical rotations. The patient’s history, including the history of the disease process, any predisposing conditions, attempts to treat the disease, and outcome of treatment will form the introductory phase of the study. Then the student should consult the literature to obtain information about the causes of the disease, variations in its presentation, the different treatments used and their relative effectiveness, the prognosis for patients and psychosocial issues impacting the outcomes. During this process, mastery of all basic science issues connected to the case must be considered more important than all other components. The student is expected to consult with clinical and basic science faculty regarding the case, the disease, basic science facts or mechanisms.

Students will be expected to contact Dr. MacDonald to obtain approval for the topic then the Office of Medical Education (OME) to obtain a case number. If the COM already has too many cases on a particular topic/disease, the student may be asked to select a different patient/topic. The OME will then enroll the student in the Blackboard course “PBL Case Writing for M4 Students” and provide access to the PBL case database.

- The end product of the selective will be a finished, ready-to-use case. Full instructions for the assembly of the case will be found in the case-writing handbook found in the Blackboard course

- The case should be submitted on a computer disk or as an email attachment with the word processor files for the entire case, preferably in Microsoft Word format.

- A Form (the checklist) signed by the clinical consultant and basic science consultant should be submitted with the case. Also, include a pharmacologist in the review process for all M2 cases or if any drug therapy is included in the case.
• Only complete cases (i.e., those with all of the parts listed in the case-writing handbook), written in acceptable English and typed in proper format will be accepted.

• To receive a letter grade, the case must be completed by the end of the Fall Semester for those registered during July, August, September, October, or November OR by April 1st for those registered in January or February.

Students will not be able to register for this selective in December, March or April.

A letter grade (H, HP, P, M, F) will be assigned to the submitted case based upon the following criteria:
Usability – Can the case be used for PBL with little modification?
Readability – Is the case written in acceptable English and comprehensible? Is the case written as a case, not as a patient’s chart?
Completeness – Are all facts, data and exhibits necessary to understand the case included?
Understanding – Is there evidence that the student understands the case and the basic science involved?
Mastery of the basic science underpinnings of the case and their incorporation into the presentation is considered a major requirement of the selective
M-ID-746   Inborn Errors of Metabolism in Clinical Medicine
Credit Hours:  4
Number of Weeks:  4
Available Times:  September, October, November, January, February, March and April ONLY – NOT AVAILABLE in July, August, or December
If interested in this elective, please discuss directly with Dr. Rizzo
Student Limit:  2
Primary Faculty:  Dr. William B. Rizzo

This elective will offer the student an opportunity to gain familiarity with those inborn metabolic diseases most likely to be encountered during residency and practice, along with methods for confirmatory diagnosis. The student will be able to attend metabolic management clinics as well as regularly scheduled conferences and seminars in metabolism, genetics and biochemistry. In addition to a general overview of inborn errors of metabolism, the student will focus in depth on one area of metabolic disease and prepare a written report after extensive reading of the primary literature and discussion with metabolic specialists. A short presentation will be given to the biochemistry and genetics group.

Because any listing of clinically important inborn errors is quite lengthy, it is anticipated that each student’s experience can be individualized, according to career directions. A prospective internist or family practitioner might emphasize the hyperlipidemias, the hyperuricemias, and the porphyrias. Surgeons and anesthesiologists might emphasize diseases with abdominal symptoms, surgical complications, and conditions causing intolerance to brief fasting or conditions leading to organ transplant. Similar examples could be cited for the prospective orthopedist, pathologist, radiologist, ophthalmologist, obstetrician, dermatologist, or pediatrician.
Objective:
To introduce students to basic mechanisms involved in the mediation of acute and chronic heart failure. Concentration on contractile, electrophysiological and neurohumoral dysfunction. Emphasis will be placed on basic pathophysiological mechanisms.

Format:
Students will meet once per week for two hours in groups of at least four students. Current literature will be reviewed and discussed. Students will be given a specific problem area to research and present a position paper on. This will be in a pro/con format (e.g., ACE inhibitors vs. digitalis in the treatment of decompensated heart failure; Sympathoexcitation in heart failure is due to arterial baroreceptor inhibition). In addition, a laboratory experience will be provided. This will entail either performing or evaluating an echocardiograph or an evaluation of cardiac catheterization data in animals with experimental heart failure.
M-ID-748   Humanities and Law: The Culture of Health Care  
Credit Hours: 4  
Number of Weeks: 4  
Available times: November, January, and March  
Student Limit: 20  
Primary Faculty: Dr. Rebecca Anderson

Students will broaden their understanding of health care from the literary, humanistic, and social standpoints by the study and analysis of selected key works on health care.

Objectives: Students will be better able to:
Reflect on the philosophical and emotional dimensions of health care practice.  
Understand the links of health care practice to larger moral, social, and public policy concerns.  
Compose, and present to the group, a well-constructed book review, essay, short story, dramatic scene, poem, or visual representation of one or more themes emerging from the readings and films.

Topics Covered:  
Students will read at least four noted interpretations of medicine in literature and social science, such as:  
The Death of Ivan Ilych, The House of God, The Emporer of All Maladies, Cutting for Stone, The Immortal Life of Henrietta Lacks, The Spirit Catches You and You Fall Down, Blood and Bone (collected poems), etc. At least two films will be shown followed by discussion (such as The Citadel, The Doctor, Wit, and Contagion). Readings and films will be selected by agreement of the faculty and students.

Student Activities:  
The group will meet at least weekly to discuss the chosen literature and view the chosen films. The final meeting will also include presentation of individual projects. Weekly meetings typically are 3-4 hours in duration and include viewing a film.

Assessment:  
Students are expected to attend each meeting and actively engage in discussion. Students will develop a final project relating to the topics discussed, present this to the group as a whole, and forward a hard copy to the faculty. Grades will reflect seriousness of purpose in participation and projects.
FAMILY MEDICINE

M-ID-717  Clinical Continuous Quality Improvement  
Credit Hours:  4  
Number of Weeks:  4  
Available times:  Check with Dr. Paul Paulman  
Student Limit:  2 per month maximum  
Primary Faculty:  Dr. Paul Paulman

This selective will allow students to learn about the principles of clinical continuous quality improvement (CQI) and design and complete a clinical CQI project in a Family Medicine Clinic. Instruction will include readings and faculty discussions. The student will perform data gathering and analysis under the supervision of family medicine faculty.

M-ID-719  The Role of Nutrition in Patient Care  
Credit Hours:  4  
Number of Weeks:  4  
Available times:  October ONLY  
Student Limit:  4 medical students  
Primary Faculty:  Listed Below  
COM: Jim Medder, M.D., M.P.H.  
SAHP: Corri Hanson, Ph.D., R.D., Glenda Woscyna, M.S., R.D.

Pre-Arrange with Dr. Jim Medder prior to July of senior year.
There has been a tremendous increase in consumer interest in nutrition – health food stores, articles in the press, multiple weight loss programs, etc. The public is regularly presented with confusing and sometimes contradictory information about optimal nutrition. With the obesity epidemic and four of the ten leading causes of death in the U.S. being diet-related conditions (diabetes mellitus, heart disease, stroke and cancer), physicians must shift their focus from the treatment of diseases to their prevention. The daily clinical practice for most physicians includes numerous patients with nutrition-related problems. Most Americans say they regard their physician as their primary source of reliable nutrition advice, yet many physicians are poorly trained in this area.

In addition to the management of public health diseases, the role of nutrition in the hospitalized patient has become an integral part of improved outcomes in the inpatient setting. Physicians caring for hospitalized patients need to have an understanding of nutrition assessment and management of enteral and parenteral nutrition.

This selective is an in-depth, comprehensive study of the role of nutrition in patient care. It reviews and builds upon nutrition instruction from the basic science years and provides outpatient and inpatient clinical opportunities to enhance nutritional assessment, counseling, and management skills.
Objectives
After completing the selective, the student will:

- Have a greater appreciation of the role nutrition plays in health and disease.
- Be able to discuss the current basic science aspects of important nutritional problems.
- Be more competent in diagnosing, treating, and managing patients with nutrition problems.
- Have a greater awareness of community resources for patients with nutrition problems.
- Have an increased understanding of evidence-based pharmacological nutritional therapy, including herbal products, dietary supplements, and other medications.

Learning Activities

- Nutritional support: one week of enteral/parenteral nutrition therapy in the inpatient setting.
- Chronic disease management: one week of outpatient management of diabetes mellitus, cardiovascular disease, renal disease, and obesity, including behavioral weight management, bariatric surgery, and pharmacological management.
- Self-directed learning and assessment utilizing online Nutrition in Medicine modules.
- Case study, including interview of patient, background research, and case presentation.
- Visits to community nutritional resources (e.g., Overeaters Anonymous, Weight Watchers, health food stores, Women, Infant and Children’s Clinic, etc.) and evidence-based review of their effectiveness.
- Weekly review/discussion sessions with faculty.

Evaluation of Student Performance
Grades will be determined by attendance and active participation in learning activities, completion of online nutrition modules, and assessment of case study presentation.

M-ID-743 Nicotine Addiction and Smoking Cessation (Biochemical and Physiologic Aspects)
Credit Hours: 4
Number of Weeks: 4
Available times: Pre-arrange with Dr. Paul Paulman
Student Limit: 1
Primary Faculty: Dr. Paul Paulman
M-ID-752  Addiction Medicine  
Credit Hours:  4  
Number of Weeks:  4  
Available times:  Every month  
Student Limit:  2  
Primary Faculty:  Vijay Dewan, M.D. (VA Medical Center)

Students will spend this Selective month on the Substance Use Disorders Program (SUDP) at the Omaha VA Hospital. Under the supervision of Dr. Dewan, students will participate in the evaluation, assessment and treatment of chemically dependent patients. Students will also be required to complete assigned readings, including literature on basic science issues related to chemical dependency.

Objectives:
1. Students will become skilled in taking substance abuse histories.
2. Students will identify physical and psychiatric consequences of substance abuse.
3. Students will achieve familiarity with the classes of drugs of abuse and their use.
4. Students will be conversant with DSM-V criteria for the diagnosis of substance abuse and dependence.
5. Students will become knowledgeable of detoxification methods used to treat physical withdrawal.
6. Students will participate in both inpatient and outpatient therapeutic interventions including group therapy, individual counseling, 12-step groups (e.g., A.A.).
7. Students will explore basic science topics relevant to an understanding of the etiology, natural history, and treatment of substance abuse (e.g., neurobiology, pharmacology, genetics).

Performance Objectives:
1. Skillful completion of history and physical exams on patients admitted to SUDP.
2. Appropriately diagnose and develop treatment plans for patients based on H&P and DSM-V criteria.
3. Daily follow-up of patients as they progress through detoxification and treatment, with an emphasis on identifying denial, minimization, craving and other symptoms.
4. Accurate evaluation of patients’ status in recovery and recognition of the need for changes in treatment modalities.
5. Students will be expected to review one topic related to addictions and present topic in a conference to patients and/or staff.
6. Students are expected to attend some evening outpatient groups and/or 12-step meetings.
INTERNAL MEDICINE

M-ID-716   The Science of Aging
Credit Hours:  4
Number of Weeks:  4
Available times:  Check with Dr. Vandenberg
Student Limit:  Check with Dr. Vandenberg
Faculty Contact:  Dr. Edward Vandenberg
Primary Faculty:  Drs. Bonasera, Eberle, Harlow, Keller, Lyons, Mostek, Potter and Vandenberg

The rotation will provide the student with the opportunity to participate in research activities, from bench to bedside; or, develop educational tools such as PBL cases for M1 or M2 students. Faculty will assist the students in identifying topics within their area(s) of interest.

Students are advised to contact one of the above listed faculty members as soon as their month is assigned to begin planning the experience.

M-ID-730   Diabetes Literature Research
Credit Hours:  4
Number of Weeks:  4
Available times:  Check with Dr. Desouza
Student Limit:  Check with Dr. Desouza
Primary Faculty:  Dr. Cyrus Desouza

Students will do literature reviews on diabetes-related research topics for presentation to the clinical care team 2-3 times per week. The student will also be expected to attend the weekly endocrine conference, which includes research and clinical topics and the twice-monthly journal club at which the student will present once during the month’s rotation. The student will participate in the Wednesday morning new diabetes patient clinic in order to correlate the diabetes investigative topics to those of greatest clinical importance.
Objective:
To increase knowledge and awareness of fourth-year medical students of medical, ethical and legal issues in occupational and environmental medicine.

Format:
This selective will consist of didactic instruction led by Dr. Von Essen. The following learning objectives will be used in evaluation of student performance. Upon completion of the rotation, medical students will:

1. Identify and discuss basic ethical issues in occupational medicine, such as disclosure of risks, confidentiality, conflict of interest, employer contracts and insurance coverage.
2. Describe medical issues in regional and international environmental and occupational medicine.
3. Go on a field trip pertaining to a clinical topic of interest to the student.
4. See patients in clinic with occupational and environmental lung disease.

Readings will be assigned for each didactic session.

Students will be asked to turn in a 1-2 page analysis of one of the readings assigned for each session. A total of one short paper (five pages, double spaced) will be required over the course of the one-month selective.

Class attendance is mandatory at each session.

Elective Topic Outline:
How to perform an independent medical examination
Tuberculosis or a public health problem
Common problems in occupational lung disease
How to perform a functional capacity assessment
Public health issues related to production agriculture
Mold and other indoor air problems

Readings will be assigned for each topic outlined above.
IMED-749  Field Epidemiology at Cedar Point
Faculty: Dr. Devin Nickol
Periods Offered: TBA
Student Limit: TBA
Where to Report: Please contact Dr. Nickol
This elective is pre-arranged through Dr. Nickol in the Department of Internal Medicine.

Please let Sue Pope know if you are using this as “elective” or “selective” credit.

Practicing evidence-based medicine requires familiarity with the basic principles of epidemiology. This three-week summer course allows students to develop a background in these principles, using as its classroom the prairies, ponds, and fields of western Nebraska. Students engage in observation and experimentation while enjoying the beautiful natural setting of UNL’s Cedar Point Biological Field Station, located near Ogallala and Lake McConaughy. Collecting trips, laboratory experiments and a group project offer unique, out-of-the-classroom learning opportunities. Visit http://darwin.unmc.edu/fieldepi for more information about this course and the facilities at Cedar Point. Students will need to obtain a copy of the required text (Epidemiology by Leon Gordis, fourth or fifth editions) prior to the rotation.

Students will develop an understanding of the epidemiological and biostatistical principles traditionally taught in an introductory-level epidemiology course. Students will develop skills in collection, dissection and laboratory experimentation. Students will develop an understanding of how classroom principles can be translated into real-world observation and experimentation. Instructional methods will include lecture, independent reading, field collection and observation trips and laboratory experiments. Computer-based methods may be included as well. Structured class time occurs Monday through Friday. Over the time period, roughly one-third of class time will be spent in lecture format and two-thirds in field/lab exercises. Evening reading assignments will be provided for most days. Student performance will be assessed using daily quizzes over assigned reading, class/lab participation and a final group project.
PATHOLOGY AND MICROBIOLOGY

M-ID-720  Of Molecules and Mankind: The Role of the Clinical Laboratory in Patient Care

Credit Hours: 4
Number of Weeks: 4
Available Times: February
Student Limit: 3-9 *
Faculty: Dept. of Pathology & Microbiology faculty
Primary Contact: TBA
Program Contact: Lisa Roseland

Students must make arrangements with Lisa Roseland (Room 3514a Medical Services Building, 402-559-3870) before signing up for ANY Pathology electives.

Objectives:
- Encourage use of the library and other resources
- Train students in morphology of peripheral blood and bone marrow cells
- Correlate clinical diseases, laboratory methods and their underlying principles

Course Topics
- The use and limitation of lab tests as aids to diagnosis.
- Sources of error due to patient factors (pre-analytical) or due to sample, reagent or equipment problems (analytical).
- Automated instrumentation and unique sources of error with these technologies.
- Pre-transfusion tests, problems in testing, and sources of discrepancy in blood typing.
- Red cell membrane abnormalities and disease.
- Clinical chemistry testing and disease.
- Immunohematology and adverse outcomes of transfusion.
- Methods of molecular diagnostic testing, chemistry, histocompatibility testing and immunopathology.
- Testing for bleeding and thrombosing disorders.
- Methods of long-term living cell preservation.
- Microbiology topics.
- Introduction to flow cytometry and immunopathology methods.

Course Format
The course consists of morning didactic sessions, some case reviews and practical lab cases, as well as participation in bone marrow signout with hematopathology faculty during afternoons as available. The selective requirement for student independent intellectual effort is fulfilled by library research in preparation for a short (20-minute) student oral presentation to the other members and faculty of the course, plus a short written paper due on the last day of the course. A final written examination is required.

* Note: If registration for a course offering is less than the minimum number (3), the course will not be offered at that time.
PHARMACOLOGY AND EXPERIMENTAL NEUROSCIENCE

Please contact Dr. David McMillan to schedule.

M-ID-731 Development of PBL Cases in Pharmacology  
Credit Hours: 4  
Number of Weeks: 4  
Available Times: Varies (July through June)  
Student Limit: Open  
Primary Faculty: Pharmacology and Experimental Neuroscience Faculty

M-ID-741 Laboratory Research in Pharmacology  
Credit Hours: 4  
Number of Weeks: 4  
Available Times: July through December and January through April  
Student Limit: Open  
Primary Faculty: Pharmacology and Experimental Neuroscience Faculty

Format:  
Basic science research in the lab of one of the faculty members of the  
Department of Pharmacology and Experimental Neuroscience.

Objectives:  
1. Examine an area in more depth than what was covered in the basic pharmacology course by becoming familiar with and learning how to critically evaluate scientific literature associated with a given research area.  
2. Conduct experiments directed towards testing a specific scientific hypothesis.  
3. Learn how to write a scientific paper by providing a report of the research activities in the format of a primary scientific communication. This report could be presented orally.

Students should arrange their research individually with the faculty member of their choice in the Department of Pharmacology and Experimental Neuroscience.