

**UNIVERSITY OF NEBRASKA
MEDICAL CENTER
COLLEGE OF MEDICINE**

SENIOR SELECTIVE HANDBOOK

CLASS OF 2013

2012-2013 ACADEMIC YEAR

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Office of Admissions and Student Affairs

Table of Contents

Senior Selective Description	Page 3 - 6
Individualized Program	Page 7
Biochemistry and Molecular Biology	Page 8
Cellular and Integrative Physiology	Pages 9 - 10
College of Public Health Offerings	Pages 11 - 12
Family Medicine	Pages 13 - 15
Genetics, Cell Biology and Anatomy	Pages 16 - 19
Internal Medicine	Pages 20 - 22
Pathology and Microbiology	Pages 23 - 24
Pharmacology and Experimental Neuroscience	Page 25

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. CORNISH. 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 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 Cellular and Integrative Physiology will be the Basic Science Department responsible for the coordination of this selective. This will be under the direction of Dr. Kurtis G. Cornish.

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.

Format:

- Option 1. Total Didactic**
- Option 2. Total Research**
- Option 3. Journal club discussions**
- Option 4. Assist in teaching lectures and/or labs in basic science**
- Option 5. Research Paper/Patient evaluation**
- Option 6. Write a PBL Case**

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.

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) 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 place clinical relevance to the project. At the end of the rotation, the student would provide a written summary in accordance with the expectations listed above.

OPTION 3: JOURNAL CLUB DISCUSSIONS

The student could 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 would 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 could prepare 2-3 hours of lecture material that could 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. If possible, it should come from a patient or similar patient seen by the student in the M3 year. The process would be overseen by a basic scientist and/or 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. Kurtis Cornish

If you are interested in pursuing a selective that is not offered in this handbook, permission must be granted by Dr. Kurtis Cornish, 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. Kurtis Cornish prior to registration.

BIOCHEMISTRY AND MOLECULAR BIOLOGY

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 porphyries. 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.

CELLULAR AND INTEGRATIVE PHYSIOLOGY

M-ID-725 Mechanisms of Heart Failure

Credit Hours: 4

Number of Weeks: 4

Available times: August

Student Limit: 4 minimum

Primary Faculty: Drs. Irving Zucker, Harold Schultz and Kaushik P. Patel

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-726 Writing Team-Based Learning Case

Credit Hours: 4

Number of Weeks: 4

Available times: September and October only

Student Limit: 4-8

Primary Faculty: Dr. Kurtis G. Cornish

Team based learning is comprised of three parts: 1) Reading assignment, 2) the IRAT and GRAT exam and 3) The application.

The student will write up a comprehensive reading assignment covering the topic of interest. They will then write an MC exam consisting of at least ten (10) questions (individual readiness assessment test, group readiness assessment test). The answers, along with the explanation, will also be provided. Finally 2-3 patient cases will be provided along with 3-4 MC questions (and answers) for each case.

Well written cases can be submitted for publication to either the Team Based Learning Collaborative of MedEdPortal.

M-ID-727 Research in Physiology

Credit Hours: 4

Number of Weeks: 4

Available times: Varies (July through April)

Student Limit: Open

Primary Faculty: Department of Cellular and Integrative Physiology faculty

M-ID-761 Ionic Mechanisms of Antiarrhythmic Therapy

Credit Hours: 4

Number of Weeks: 4

Available times: February and March ONLY

Student Limit: 2-4

Primary Faculty: Dr. George Rozanski

This selective is designed to develop an in-depth, basic understanding of the cellular mechanisms of cardiac arrhythmias and the ionic basis of antiarrhythmic therapy. Each student will be expected to write a research paper focusing on the basic mechanisms underlying the efficacy of a class or particular type of antiarrhythmic drug (chosen by the student and approved by the primary faculty).

**COLLEGE OF PUBLIC HEALTH OFFERINGS
(Formerly Preventive and Societal Medicine)**

M-ID-748 Humanities and Law: The Culture of Health Care

Credit Hours: 4

Number of Weeks: 4

Available times: November, January, February and March

Student Limit: 2-5

Primary Faculty: Drs. Andrew Jameton and Virginia Aita

Students will broaden their understanding of health care from the literary and humanistic standpoint 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 nature of health care practice.

Understand the links of health care practice to larger moral and social concerns.

Compose a short, well-argued, grammatically correct, and informative essay.

Topics Covered:

Student will read key interpretations of medicine in literature and social science, such as: *The Death of Ivan Ilych*, *Other People's Children*, *The House of God*, *Arrowsmith*, *Forgive and Remember*, *Experiment Perilous*, *The Spirit Catches You and You Fall Down*, etc. Two films will be shown in evenings followed by discussion (such as *The Citadel*, *The Doctor*, *Crimes and Misdemeanors*). A reading list of roughly eight key works will be selected by the faculty. Two discussion meetings will be held each week.

Student Activities:

Semi-weekly meetings with faculty; composition of a long paper submitted at least once for review and once for assessment.

Assessment:

Students will engage in a semi-weekly discussion meeting on their writing and research. Selected films (on videotape) will be required for analysis. An eight to ten page paper relating literary to the books will also be required. Full attendance is required.

Contact Dr. Andrew Jameton at ajameton@unmc.edu (by phone at 402-559-4690) or Dr. Virginia Aita at vaita@unmc.edu (by phone at 402-559-5157).

M-ID-750 Humanities and Law: Philosophy of Human & Environmental Health

Credit Hours: 4

Number of Weeks: 4

Available times: September, February and April

Student Limit: 2-4

Primary Faculty: Dr. Andrew Jameton

Students will explore environmental aspects of human health and health care delivery systems through site visits, library research, and interviews.

Objectives: Student will be better able to:

Analyze the environmental impact and dependencies of specific therapies.

Assess environmental causes of health problems.

Educate patients concerned about toxic exposures and environmental change.

Interpret medical practice in a global environmental context.

Topics Covered:

General effects of environmental change on human health; major controversies over health impacts; environmental impact of health systems; priority setting in public health concerns; extent of medical responsibility; communication with patients; identifying environmentally mediated health problems; impact of health care on the environment; role of medicine in the future; appropriate medical responses to environmental health problems.

Student Activities:

Activities will vary but include library research; environmental analysis of specific therapies through observation, interviews, and library research; and supervised writing. A reading core will be required of all students. This will include readings on: a) the current health impacts of environmental issues (mainly from medical and public health journals); b) philosophical considerations of current paradigms of health and medical care (which will be drawn from both bioethics literature and from the field of environmental ethics); and c) the current environmental situation (drawn from environmental ethics, ecology, and environmental policy).

Assessment:

A brief, polished paper (8-10 pages) analyzing an environmental health problem due at the end of the rotation. The topic of the paper must be decided upon when the rotation begins. Full participation in activities is required.

Contact Dr. Andrew Jameton by e-mail at ajameton@unmc.edu or by phone at 402-559-4680.

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 elective 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 Chemical Dependency and Addiction Medicine

Credit Hours: 4

Number of Weeks: 4

Available times: Every month

Student Limit: 2

Primary Faculty: Kathleen Grant, M.D. and Imad Alsakaf, M.D. (VA Medical Center) (402-995-4301)

Please call Dr. Grant to schedule!

Students will spend this selective month on the Substance Use Disorders Program (SUDP) at the Omaha VA Hospital. Under the supervision of Drs. Grant and Alsakaf, 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-IV 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-IV 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.

GENETICS, CELL BIOLOGY AND ANATOMY

M-ID-711 Anatomic Dissection

Credit Hours: 4

Number of Weeks: 4 minimum

Student Limit: 4 in September/October/November and variable numbers in other months

Primary Faculty: Dr. Robert Binhammer

This selective is pre-arranged through Dr. Robert Binhammer in the Department of Genetics, Cell Biology and Anatomy.

Selectives are designed to deepen a student's anatomic knowledge. They would be projects involving dissection, preparation of material for virtual microscopy or light microscopy, or simple research.

An ideal approach to selection of a project is to consult with a clinician from the field in which the student plans to seek post-graduate training. In addition, the Department has developed a roster of projects that can be used by students for ideas, but some consultation with a clinician during the course of the selective is expected. After choosing a project, the student would be expected to review known anatomy, the reasons for its clinical significance, carry out the project (dissection or alternative) under the direction of a member of the faculty of the Department of Genetics, Cell Biology and Anatomy, take photographs of any dissection and present the findings as a PowerPoint presentation to interested faculty. Ordinarily, students would be expected to complete several projects or three components of a larger project in a month's time and give a presentation, but since not all projects may fit this plan, alternative arrangements for presentations can be developed with individual GCBA faculty members.

A minimum of 4-6 weeks before the start of the selective, the student must communicate with Dr. Binhammer about the project, who will determine if the resources in the department are adequate for this project or will provide the student with a list of possibilities. He will discuss the students' plans and steer each student to an appropriate departmental mentor with whom expectations for the selective will be discussed.

Faculty available include Drs. Binhammer, Todd, Rodriguez-Sierra, Keim and Lomneth. The number of selectives offered by each member of the faculty in each month may vary from year to year.

M-ID-728 Development of PBL Cases

Credit Hours: 4

Number of Weeks: 4

Available times: July through February

Student Limit: No limit

Primary Faculty: Dr. Robert T. Binhammer

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 the ESO to obtain a case number and obtain approval for a topic. 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 end product of the selective will be a *finished, ready-to-use case*. An alternative to writing a brand-new case for this selective is to edit and update a pre-existing case. The ESO has a database of existing cases, some of which have never been used and others that have not been used for several years. These cases need clinical updating and may require re-formatting and correcting other deficiencies. Many of these cases have significant educational potential and value.

Whether you choose to write a new case or edit a previous case, the final product should meet the same criteria. The case, suitable for use in three sessions {one hour (first session), two hours (second session) and two hours (third session)}, must include the following parts:

- Title page with the names of the case authors and consultants, a fictitious patient's name, and the date.
- A list of case objectives, including all of the important basic science issues that the case addresses and that the student enrolled in basic sciences should examine. Case objectives are to be provided for each of the three sessions. Active verbs that ask the students to be able to do something

should be used when writing objectives (i.e. list, compare, describe, etc., while avoiding nebulous terms such as know, understand).

- A list of important references that the facilitator may wish to consult before facilitating the case and the student may wish to consult after completion of the case sessions. *References must include sources other than textbooks; 4 to 6 references will usually be sufficient to demonstrate adequate coverage of the literature.*
- A photocopy or PDF of a particularly good review of the disease presented in the case, especially if the basic science issues are discussed; alternatively, the student may write a case summary including differential diagnosis and a discussion of the relevant basic science issues.
- Fifteen multiple-choice, matching or extended matching questions for use in testing knowledge of the case objectives (*be sure to include answers*).
- The stepwise presentation of the case divided into three sections for three sessions, each step in the presentation, including questions the facilitator might use to facilitate discussion amongst the students and other notes a non-expert facilitator might find useful (*be sure to give brief answers to facilitator questions*).
- Relevant results of physical exam, lab tests, scans, etc. including any exhibits such as EKGs, CT scans, PET scans, X-rays, and histopathology. Please work with your clinical consultant to obtain copies of the patient's diagnostic tests. Copies of exhibits suitable for reproduction are essential. Contact the ESO if you have questions regarding including patient diagnostic tests as digital images in the case.
- Results of any treatments administered to the patient, including the patient's verbal and behavioral responses.
- The prognosis for this patient if the complete cure or death is not the end of the case.
- A computer disk or email attachment with the word processor files for the entire case, preferably in Microsoft Word format.
- ***Form signed by clinical consultant and basic science consultant. Also, include a pharmacologist in the review process if any drug therapy is included in the case.***

After completing the case in draft form, the student may wish to discuss it with faculty (not necessarily just the primary selective faculty) or fellow students

before submitting it. Only complete cases (i.e. those with all of the parts listed above), 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 first semester or the first of April. Students will not be able to register for this selective in 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-760 Topics in Cell Biology
Credit Hours: 4
Number of Weeks: 4
Available times: January
Student Limit: 2

INTERNAL MEDICINE

M-ID-716 The Science of Aging

Credit Hours: 4

Number of Weeks: 4

Available times: Check with Dr. Potter

Student Limit: Check with Dr. Potter

Primary Faculty: Drs. Bonasera, Eberle, Hoarty, Keller, Lyons, Mostek, Potter and Vandenberg

In depth study will provide the student with a broad perspective on the science of aging from bench to bedside. During the period of study, students might develop a novel approach to study age-related changes in behavior or gene expression; a problem based learning (PBL) case for use by first or second year students; or a computer based study and learning case for use by third or fourth year students. Faculty will assist the student in identifying topics within their area of interest.

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.

M-ID-786 Issues in Public Health and Medicine

Credit Hours: 4

Number of Weeks: 4

Available times: Check with Dr. Von Essen

Student Limit: Check with Dr. Von Essen

Primary Faculty: Susanna Von Essen, M.D., M.P.H.

Objective:

To increase to 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 lead by Dr. Susanna Von Essen. The following learning objective 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. A field trip pertaining to a clinical topic of interest to the student.
4. Seeing patients in clinic with occupational and environmental lung disease.

Reading 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 basic science 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: T.B.A.

Where to Report: Please contact Dr. Devin Nickol

This elective is pre-arranged through Dr. Devin 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 edition) 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: October and February

Student Limit: 3-9 *

Faculty: Dept. of Pathology & Microbiology faculty

Primary Contact: James Landmark, M.D. (Course Director)

Program Contact: Kathryn Dufek

Students must make arrangements with Kathryn Dufek (Room 3503 Medical Services Building, 559-7760) 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.