



Edward Via College of Osteopathic Medicine

MED 8050/MED 8055

Clinical Internal Medicine II and Internal Medicine Modules
Academic Year 2019 - 2020

ROTATION SYLLABUS



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I. Rotation Description

As clinicians, teachers, and researchers, our internal medicine faculty members are committed to the college's mission to provide medical education and research that prepares globally minded, community-focused physicians and to improve the health of those most in need.

The Internal Medicine clinical faculty are practicing in affiliated teaching hospitals for VCOM. The Internal Medicine faculty are passionate about medicine and medical education. The Internal Medicine faculty include those practicing primary care internal medicine, hospital medicine, and those who practice in the full range of sub-specialties. Sharing the college's mission, and leading by example, members of our faculty provide volunteer care for the under-served in regional free clinics, and on international medical missions.

During the third year internal medicine rotations, students expand their knowledge of adult health and wellness, preventative, primary, secondary and tertiary care. They learn about the treatment of acute and chronic medical conditions, palliative and end of life care and gain the ability to apply this knowledge in the clinical setting. The curriculum is taught through case modules, assigned readings, bedside and clinic teaching, journal clubs, tumor boards, grand rounds, and through one-on-one student-preceptor experience in caring for patients in the clinical setting.

Students are expected to complete their assignments for both internal medicine and the longitudinal OMM course. The Core Internal Medicine rotations include inpatient and outpatient exposure, as well as general internal medicine and medical sub-specialty exposure. The practice of internal medicine occurs in the private, public and governmental clinic settings, in long-term care facilities, in inpatient institutional settings and in the emergency departments of hospitals and institutions. Due to the variety of practice opportunities and formats in internal medicine rotations, students should review their [specific site instructions](#) for a more detailed description of their specific practice setting.

II. Course Goals and Objectives

A. Goals of the Course

- To acquire the knowledge, skills and competencies that are required to evaluate and treat patients with acute and chronic medical conditions commonly found in the adult at a level consistent with a graduating generalist medical student.
- To develop the physical examination and clinical skills required of a graduate medical student in general internal medicine practice, including the ability interpret information relative to normal and abnormal structure, function and physiology.
- To apply historical and clinical information for problems solving to advance the health of the patient.
- To develop the psycho-social and communication skills and competencies that are required to communicate with, and treat a wide diversity of patients in acute, outpatient and institutional settings.
- To develop the ability to research medical literature and scientific resources for information that affects the patient's condition, treatment and outcomes and the ability to evaluate and apply scientifically valid information to maximize the outcome of the patient.
- To develop knowledge, skill application and understanding of the indications, contraindications and application of medical procedures and therapies common to the specialty, including but not limited to ordering and interpretation of diagnostic studies, utilization of pharmacological agents, psychological and nutritional therapies, incorporation of osteopathic principles and practices into the patient's care, and clinical procedures such as central line placement, lumbar punctures, intubation, management of ventilators, etc.

B. Clinical Performance Objectives

While the end-of-rotation exam is derived from the didactic curriculum and objectives described above in the “Clinical Modules – Required Curriculum” section, the end-of-rotation evaluation completed by your preceptor is based on clinical core competencies. These core competencies reflect student performance in 6 key areas: communication, problem solving, clinical skills, medical knowledge, osteopathic medicine and professional and ethical considerations. Your end-of-rotation evaluation from your preceptor will be based directly on your performance in these 6 core competencies as described below.

1. **Communication** - the student should demonstrate the following clinical communication skills:
 - a. Effective listening to patient, family, peers, and healthcare team

- b. Demonstrates compassion and respect in patient communications
 - c. Effective investigation of chief complaint, medical and psychosocial history specific to the rotation
 - d. Considers whole patient: social, spiritual & cultural concerns
 - e. Efficiently prioritizes essential from non-essential information
 - f. Assures patient understands instructions, consents & medications
 - g. Presents cases in an accurate, concise, well organized manner
- 2. Problem Solving** – the student should demonstrate the following problem solving skills:
- a. Identify important questions and separate data in organized fashion organizing positives & negatives
 - b. Discern major from minor patient problems
 - c. Formulate a differential while identifying the most common diagnoses
 - d. Identify indications for & apply findings from the most common radiographic and diagnostic tests
 - e. Identify correct management plan considering contraindications & interaction
- 3. Clinical Skills** - the student should demonstrate the following problem solving skills:
- a. Assesses vital signs & triage patient according to degree of illness
 - b. Perform good auscultatory, palpatory & visual skills
 - c. Perform a thorough physical exam pertinent to the rotation
- 4. Osteopathic Manipulative Medicine** - the student should demonstrate the following skills in regards to osteopathic manipulative medicine
- a. Apply osteopathic manipulative medicine successfully when appropriate
 - b. Perform and document a thorough musculoskeletal exam
 - c. Utilize palpatory skills to accurately discern physical changes that occur with various clinical disorders
 - d. Apply osteopathic manipulative treatments successfully
- 5. Medical Knowledge** – the student should demonstrate the following in regards to medical knowledge
- a. Identify & correlate anatomy, pathology and pathophysiology related to most disease processes
 - b. Demonstrate characteristics of a self-motivated learner including demonstrating interest and enthusiasm about patient cases and research of the literature
 - c. Are thorough & knowledgeable in researching evidence based literature
 - d. Actively seek feedback from preceptor on areas for improvement
 - e. Correlate symptoms & signs with most common disease
- 6. Professional and Ethical Behaviors** - the student should demonstrate the following professional and ethical behaviors and skills:
- a. Is dutiful, arrives on time & stays until all tasks are complete
 - b. Consistently follows through on patient care responsibilities
 - c. Accepts & readily responds to feedback, is not resistant to advice
 - d. Assures professionalism in relationships with patients, staff, & peers
 - e. Displays integrity & honesty in medical ability and documentation
 - f. Acknowledges errors, seeks to correct errors appropriately
 - g. Is well prepared for and seeks to provide high quality patient care
 - h. Identifies the importance to care for underserved populations in a non-judgmental & altruistic manner

III. Rotation Design

A. Educational Modules

Educational modules using lectures, cases, and other forms of delivery are used for third year curriculum. Each student must complete a post-rotation exam to assure that the expected basic content

or medical knowledge has been acquired during the rotation. In addition to the experiences received in the clinical training sites, students are expected to read the content of the assigned textbooks and on line materials in order to complete the entire curriculum assigned for the clinical module.

B. Formative Evaluation

Student competency based rating forms are used by the preceptor to evaluate each student's clinical skills and the application of medical knowledge in the clinical setting. These forms are only completed by the clinical faculty member or preceptor. Performance on rotations will be evaluated by the primary clinical faculty member precepting the student. VCOM uses a competency based evaluation form which includes the osteopathic core competencies. These competencies evaluated include:

- a. Medical knowledge;
- b. Communication;
- c. Physical exam skills;
- d. Problem solving and clinical decision making;
- e. Professionalism and ethics;
- f. Osteopathic specific competencies; and
- g. Additional VCOM values.

Student competency is judged on clinical skill performance. Each skill is rated as to how often the student performs the skill appropriately (i.e. unacceptable, below expectation, meets expectation, above expectation, exceptional).

C. Logging Patient Encounters and Procedures

Students are required to maintain a log to identify the procedures performed and the number of essential patient encounters in the CREDO application. All students must review these logs with their preceptors prior to the end of the rotation period, as required by the final preceptor evaluation form. Students are encouraged to periodically review their CREDO entries with their preceptor during the rotation period.

IV. Credits

5 credit hours

V. Course Texts

A. Required Textbooks

- Benjamin, I. K., Griggs, R. C., Wing, E. J., & Fitz, G. (2016). *Andreoli & Carpenter's Cecil Essentials of Medicine* (9th ed.). Philadelphia, PA: Elsevier. ISBN-13: 978-1437718997 (Available in Clinical Key in the VCOM electronic library)
- Kuchera, M. & Kuchera, W. (1994). *Osteopathic considerations in systemic dysfunction* (Rev 2nd ed.). Dayton, OH: Greyden Press. ISBN: 978-1570741548
- American Osteopathic Association, & Chila, A. *Foundations of osteopathic medicine* (3rd ed.). Baltimore, MD: Lippincott Williams & Wilkins. ISBN: 978-0781766715 (Available in LWW Osteopathic Medicine Collection in the VCOM electronic library)

VI. Course Grading and Requirements for Successful Completion

A. Requirements

- Attendance according to VCOM and preceptor requirements as defined in the [College Catalog and Student Handbook](#).
- Completion and submission of the clinical curriculum
In addition to the learning experience in the clinical site, the clinical curriculum consists of the reading assignments and learning objectives that are included in this syllabus and

clinical case modules that are derived from some, but not all, of the learning objectives. Student's success as a physician will depend upon the learning skills they develop during this core rotation, as guided by this syllabus and clinical case modules. National boards, residency in-training examinations, and specialty board examinations require ever increasing sophistication in student's ability to apply and manipulate medical knowledge to the clinical context.

The clinical case modules were developed by VCOM Discipline Chairs and are intended to provide an OMS 3 student with a clinical, patient-centered approach to the learning content of this rotation. The modules should not be approached as rote learning, but should provide structured, clinically-focused learning from the evidence base for this rotation. To submit the clinical case modules follow the link for your campus below:

- Auburn Campus:
https://virginiatech.qualtrics.com/jfe/form/SV_43mvLVE35BHvZ4h
- Carolinas Campus:
https://virginiatech.qualtrics.com/jfe/form/SV_3ZQuiPss394BXSt
- Virginia Campus:
https://virginiatech.qualtrics.com/jfe/form/SV_02rgna9QII9lyND

The content of the end-of-rotation exams will be based upon the learning objectives and reading assignments in this syllabus and the clinical case modules and their associated references.

- Logging Patient Encounters and Procedures in CREDO:
 - Students are required to log all patient encounters and procedures into the CREDO application. All students must review these logs with their preceptors prior to the end of the rotation period, as required by the final preceptor evaluation form. Students are encouraged to periodically review their CREDO entries with their preceptor during the rotation period. These reviews should stimulate discussions about cases and learning objectives, as well as identify curriculum areas the student may still need to complete. CREDO can be accessed at: <https://credo.education/>
- Rotation Evaluations:
 - Student Site Evaluation: Students must complete and submit at the end of rotation. See the VCOM website at: <http://intranet.vcom.edu/clinical/Login/index.cfm?fuseaction=LoginInfo&LoginPage=ViewStudentSchedule> to access the evaluation form.
 - Third-Year Preceptor Evaluation: It is the student's responsibility to ensure that all clinical evaluation forms are completed and submitted online or turned in to the Site Coordinator or the Clinical Affairs Office at the completion of each rotation. Students should inform the Clinical Affairs Office of any difficulty in obtaining an evaluation by the preceptor at the end of that rotation. See the VCOM website at: www.vcom.edu/academics/clinical-forms to access the evaluation form.
 - Mid-Rotation Evaluation: The mid-rotation evaluation form is not required but highly recommended. See the VCOM website at: www.vcom.edu/academics/clinical-forms to access the mid-rotation evaluation form.
- Successful completion of the end-of-rotation written exam. The end-of-rotation exam questions will be derived directly from the specific objectives presented in each of the below modules.

B. Grading

Students must pass both the "module" and "rotation" portions of the course. All rotations have a clinical rotation grade and clinical modules/exam grade. Failure to submit all of the internal medicine case module files using the Qualtrics link provided above **by no later than 5 PM on the last day of the rotation** will result in a **deduction of 5 points from your end-of-rotation exam score.**

Clinical Grading Scale and GPAs						
OMS 3 End-of-Rotation Exam Grades			OMS 3 AND OMS 4 Clinical Rotation Grades		Other Grades	
A	90-100	4.0	H	Honors	IP	In Progress
B+	85-89	3.5	HP	High Pass	INC	Incomplete
B	80-84	3.0	P	Pass	CP	Conditional Pass
C+	75-79	2.5	F	Fail	R	Repeat
C	70-74	2.0			Au	Audit
F	<70	0.0				

C. Remediation

Students who fail one or more rotations or one or more end-of-rotation exams twice will be referred to the Promotion Board. If a student fails the professionalism and ethics portion of the evaluation he or she may be removed from the rotation and referred to the Professionalism and Ethics Standards Board. No grade will be changed unless the Office of Clinical Affairs certifies to the Registrar, in writing, that an error occurred or that the remediation results in a grade change.

- **Failure of an End-of-Rotation Exam**

Students must pass each end of rotation exam with a C (70%) or better to receive a passing grade for the clinical medical knowledge module. Students who fail an end of rotation exam but pass the clinical rotation evaluation component have a second opportunity to pass the exam within 28 days of notification. If the student passes the remediation exam, the remediated exam grade will be the grade recorded on the transcript and be GPA accountable. If the student fails the end of rotation exam a second time, the student will receive an "F" grade for the rotation and will be brought before the Promotion Board. If the student is allowed to repeat the rotation, all components of the rotation must be repeated. In this case, the "F" grade remains the permanent grade for the initial rotation and the student will receive a new grade for the repeated rotation. The grade will be recorded in a manner that designates that it is a repeated rotation (eg. R-pass).

- **Failure of a Rotation**

If a student fails the clinical rotation evaluation the student will receive an "F" grade for the rotation and will be brought before the Promotion Board. If the student is allowed to repeat the rotation, all components of the rotation must be repeated. In this case, the "F" grade remains the permanent grade for the initial rotation and the student will receive a new grade for the repeated rotation. The grade will be recorded in a manner that designates that it is a repeated rotation (eg. R-pass).

- **Failure to Make Academic Progress**

Repeated poor or failing performance in a specific competency area on the evaluation form across more than one rotation may also be a reason for a required remediation at the discretion of the Associate Dean for Clinical Affairs in consultation with the clinical chair, the preceptor, and the Promotion Board. In general, rotations should show a progression of improvement in clinical performance. Those students who receive a mere "Pass" on multiple rotations and/or maintain a "CP" on one or more rotations after final grades are received, will be counseled about overall

performance and may be required to complete an additional rotation at the end of the year. Any additional curriculum or required remediation will be based on the performance measure. In general, rotations should show a progression of improvement in performance. Those students who continually score in the "unsatisfactory" category or repeated "performs some of the time, but needs improvement" consistently and do not improve over time or who fail one or more rotations may be deemed as not making academic progress and, as a result, may be referred to the Promotion Board and be required to complete additional curriculum. Multiple rotation failures may result in dismissal.

Poor ratings on the clinical rotation evaluation in the professional and ethical areas of the assessment are addressed by the Associate Dean for Clinical Affairs. The Associate Dean may design a remediation appropriate to correct the behavior or if needed may refer the student to the Professionalism and Ethics Board. In the case of repeated concerns in a professional and/or ethical area, the Associate Dean for Clinical Affairs may refer the student to the Campus Dean for a Behavioral Board or Promotion Board hearing. The Campus Dean will act upon this referral depending on the severity and the area of the performance measure. Poor ratings in this area will include comments as to the exact nature of the rating. Repeated poor a failing performance in a specific competency area on the evaluation form across more than one rotation may also be a reason for a required remediation at the discretion of the Associate Dean for Clinical Affairs in consultation with the clinical chair and the preceptor, and the Promotion Board. In general, rotations should show a progression of improvement in clinical performance.

VII. Academic Expectations

Grading policies, academic progress, and graduation requirements may be found in the [College Catalog and Student Handbook](#).

A. Attendance

Attendance for all clinical rotation days is mandatory. The clinical site will determine the assigned days and hours to be worked within the rotation period. Students are required to attend any orientation the clinical site sets as mandatory prior to any rotation or the clinical year. The orientation sessions vary by site and are required to maintain assignment to the site. Although the clinical site determines the assigned days and hours to be worked, VCOM has established the following guidelines:

- 4 week rotations may not be less than 20, eight hour days for a total of a minimum of 160 hours and often average 180 hours or greater.
 - Students may be required to work up to 24 days in a 4-week period or 25 days in a 1-month rotation, including call and weekends at the discretion of the clinical site.
 - If the clinical site requires longer daily hours or shift work, the student may complete the required hours in less than 20 days with the following specifications:
 - Students should not work greater than an average of 12 out of every 14 days
 - Student should not work more than 12 hours daily, exclusive of on-call assignments.
 - If on-call hours are required, the student should not be on duty for greater than 30 continuous hours.
 - Students may be required to work weekends but in general should have 2 weekends per month free and an average of 2 of 7 days per week free.

It should be noted that preceptors will have final determination of the distribution of hours, which may vary from this policy but should not in general be less than 160 hours for a 4 week rotation. The institution's DSME and assigned clinical faculty determine clinical duty hours. Students are responsible to the assigned clinical faculty and are expected to comply with the general rules and regulations established by the assigned clinical faculty, and/or the core hospital(s), or facility associated with the rotation.

The average student clinical day begins at 7 am and ends at 7 pm. Students are expected to work if their assigned clinical faculty is working. Some rotations assign students to shifts and in such cases the student may be required to work evening or night hours. If on-call hours are required, the student must take the call; however, the student should not be on duty for greater than 30 continuous hours. Students may be required to work weekends, but in general should have two weekends per month free and two of seven days per week free. Student holidays are determined by the clinical site and follow those of other students and/or residents from the clinical site. Students must be prompt and on time for the clinical rotation.

Students are expected to arrive on time to all clinical rotations. If a student is late, he or she must notify the site coordinator and the preceptor prior to or at the time they are scheduled arrive. Students must have a reason for being late such as illness or vehicle issues and it is not anticipated that this would occur more than one occasion AND it is important the student call in prior to being late. Repeated tardiness is considered as unprofessional behavior and is a reason for dismissal from a rotation. Students with repeated tardiness will be referred to the PESB. Tardiness is defined as more than 5 minutes after the scheduled time the preceptor designates as the expected arrival time.

The Office of Clinical Affairs requires that the medical student complete and submit an Excused Absence Clinical Rotations Approval form for any time "away" from clinical rotations. Forms are available at: www.vcom.edu/academics/clinical-forms. The student must have this form signed by their preceptor and others designated on the form to obtain an excused absence and must be provided to the DSME and the Office of Clinical Affairs through the site coordinator. The form must be completed prior to the beginning of the leave. If an emergency does not allow the student to submit this prior to the absence, the "Excused Absence Clinical Rotations Approval" form must be submitted as soon as the student is physically able to complete the form. In addition to completion of the form, students must contact the Department of Clinical Affairs, the Site Coordinator, and the preceptor's office by 8:30 AM of the day they will be absent due to an illness or emergency. No excused absence will be granted after the fact, except in emergencies as verified by the Associate Dean for Clinical Affairs.

Regardless of an excused absence, students must still complete a minimum of 160 hours for a 4 week rotation in order to pass the rotation. Any time missed must be remediated during the course of the rotation for credit to be issued. Students may remediate up to four missed days or 48 hours missed during any rotation period by working on normal days off. OMS 3 students who have any unexcused absences will be referred to the PESB.

VIII. Professionalism and Ethics

It is advised that students review and adhere to all behavioral policies including attendance, plagiarism, dress code, and other aspects of professionalism. Behavioral policies may be found in the [College Catalog and Student Handbook](#).

A. VCOM Honor Code

The VCOM Honor Code is based on the fundamental belief that every student is worthy of trust and that trusting a student is an integral component in making them worthy of trust. Consistent with honor code policy, by beginning this exam, I certify that I have neither given nor received any unauthorized assistance on this assignment, where "unauthorized assistance" is as defined by the Honor Code Committee. By beginning and submitting this exam, I am confirming adherence to the VCOM Honor Code. A full description of the VCOM Honor Code can be found in the [College Catalog and Student Handbook](#).

IX. Clinical Curriculum

In addition to the topics below with reading references and learning objectives, students must also complete the assigned clinical cases. The content of the end-of-rotation exams will be based upon the learning objectives and reading assignments in this syllabus and the clinical case modules and their associated references. To submit the clinical case modules follow the link for your campus below:

- Auburn Campus: https://virginiatech.qualtrics.com/jfe/form/SV_43mvLVE35BHvZ4h
- Carolinas Campus: https://virginiatech.qualtrics.com/jfe/form/SV_3ZQuiPss394BXSt
- Virginia Campus: https://virginiatech.qualtrics.com/jfe/form/SV_02rgna9QI19lyND

1. HIV & AIDS

Topics Included: Diagnosis, management and complications

Reading Reference:

- Andreoli and Carpenter's Cecil's Essentials of Medicine
 - Ch. 21 Infectious Diseases of the Lung
 - Ch. 101 Human Immunodeficiency Virus Infection and Acquired Immunodeficiency Syndrome

Learning Objectives:

- Identify risk factors for HIV utilizing the microbiology, epidemiology, and pathophysiology
- Apply current CDC testing guidelines.
- Interpret HIV testing results.
- Recognize acute retroviral syndrome.
- Relate the clinical course of HIV/AIDS infection to testing results.
- Describe the relationship between the CD4+ lymphocyte count and risk of opportunistic infection.
- Recognize appropriate clinical scenarios to initiate anti-retroviral therapy.
- Predict prevention strategies for HIV/AIDS.
- Diagnose opportunistic infections associated with AIDS utilizing clinical history and diagnostic studies.
- Distinguish complications of HIV/AIDS including metabolic, infectious and immune-mediated.
- Distinguish clinical situations to prescribe prophylactic anti-HIV medications, e.g. PrEP, PEP.
- Distinguish clinical situations to begin prophylaxis for opportunistic infections associated with AIDS.
- Infer appropriate treatment of HIV/AIDS and opportunistic infections.

2. Tuberculosis

Topics Included: Diagnosis and management, screening, Multidrug resistant TB, Extremely drug-resistant TB

Reading Reference: Andreoli and Carpenter's Cecil Essentials of Medicine, Ch. 21: Infectious Diseases of the Lung

Learning Objectives:

- Recognize epidemiology of tuberculosis.
- Distinguish the following in relation to MTB: granuloma formation, caseation, Gohn complex, Pott's disease).
- Recall the principles of treatment of active and latent tuberculosis.
- Differentiate chest x-ray findings in various presentations of TB.
- Diagnose latent TB utilizing history, physical exam and diagnostic testing.
- Relate the indications for performing a purified protein derivative (PPD) test or IGRA and how results should be interpreted given a range of clinical scenarios and patient histories.
- Define multi-drug resistant tuberculosis.
- Define extensively drug resistant tuberculosis.
- Identify risk factors for multi-drug resistant tuberculosis.

- j. Identify prevention and isolation strategies for the patient with active tuberculosis.
- k. Identify prevention strategies for multi-drug resistant tuberculosis.
- l. Correlate increased incidence of immune suppressing diseases such as HIV with multi-drug resistant tuberculosis.
- m. Recognize various presentations of tuberculosis.

3. Oncology I: Hematological Cancers

Topics Included: Leukemias (chronic myelogenous leukemia, acute myeloid leukemia, acute lymphoblastic leukemia, chronic lymphocytic leukemia), lymphomas (Hodgkin and Non-Hodgkin), multiple myelomas, MGUS, myelodysplastic syndrome

Reading Reference:

- Andreoli and Carpenter's Cecil's Essentials
 - Ch. 45 Hematopoiesis and Hematopoietic Failure
 - Ch. 46 Clonal Disorders of the Hematopoietic Stem Cell
 - Ch. 49 Disorders of Lymphocytes

Learning Objectives:

- a. Create a differential diagnosis for anemia in adult patient.
- b. Identify risk factors and typical epidemiology for hematological malignancies.
- c. Classify hematological disorders using the World Health Organization Classification
- d. Diagnose Hodgkin lymphoma utilizing clinical presentation, including classic B symptoms, physical examination, and laboratory data
- e. Recognize the bimodal epidemiology in presentation of Hodgkin lymphoma
- f. Predict staging and prognosis of hematological malignancies
- g. Identify first line treatments and complications of common hematologic malignancies.
- h. Identify common organisms associated with febrile neutropenia.
- i. Devise the evaluation and management of fever in a neutropenic patient.
- j. Devise treatment and prevention strategies for tumor lysis syndrome.
- k. Identify risk factors for leukostasis and initial treatment.
- l. Recognize the lab and x-ray findings that are diagnostic of plasma cell disorders (MGUS, multiple myeloma)
- m. Identify the common adult leukemias and their typical CBC findings.
- n. Differentiate AML from ALL.

4. Oncology II: Solid Tumor Cancers

Topics Included: Non-surgical management including diagnosis and screening of brain, bladder, renal, liver (hepatocellular carcinoma) cancer

Reading References:

- Andreoli and Carpenter's Cecil Essentials of Medicine
 - Ch. 57 Gastrointestinal Cancers
 - Ch. 58 Genitourinary Cancers
 - Ch. 119 Central Nervous System Tumors
- AccessMedicine
 - [Case Files Neurology: Metastatic Brain Tumor](#)
 - [Case Files Surgery: Focal Liver Lesion](#)

Learning Objectives:

- a. Identify risk factors for GU cancers, liver cancer, and brain cancer
- b. Recognize common presentations for individuals presenting with solid tumor cancers
- c. Distinguish diagnostic testing and procedures utilized for diagnosis of solid tumors
- d. Predict general treatment for solid tumor cancers
- e. Recognize common complications of CNS tumors, e.g. hemorrhage and herniation
- f. Recognize the appropriate management of CNS emergencies

- g. Determine the best management of CNS tumors – surgery, radiation, chemotherapy, and targeted agents
- h. Relate genetic mutations in diagnosis and management of brain tumors
- i. Predict general prognosis for patients with solid tumor cancers.
- j. Recognize laboratory abnormalities associated with renal and bladder cancer.
- k. Identify common radiologic findings of renal and bladder cancers.
- l. Classify the genetic disease and syndrome associated with renal cancer.

5. Neurology I: Seizure and Epilepsy

Topics Included: Differential diagnosis of seizure, focal seizures, generalized seizures, syncope and vertigo in young adult

Reading References:

- Andreoli and Carpenter's Cecil Essentials of Medicine
 - Ch. 113 Dizziness and Vertigo
 - Ch. 118 Epilepsy
- [Dynamed Plus: Syncope - Approach to the Patient](#)
- AccessMedicine
 - [Case Files Neurology: New-Onset Seizure, Adult](#)
 - [Case Files Neurology: Absence Versus Complex Partial Seizures](#)
 - [Case Files Neurology: Vertigo, Benign Paroxysmal Position](#)
 - [Case Files Emergency Medicine: Syncope](#)

Learning Objectives:

- a. Classify seizures by clinical signs and symptoms.
- b. Define the differential diagnosis of seizure
- c. Distinguish the diagnostic approach for the first seizure in an adult, including the importance of the history, examination, and testing.
- d. Recognize the different types of therapy and arguments for and against treatment of the first seizure.
- e. Distinguish general treatment for seizures and status epilepticus.
- f. Categorize syncope based on etiology: neurally mediated, orthostatic, and cardiac syncope
- g. Identify the common causes of syncope.
- h. Identify the important aspects of the history and physical exam in a patient with syncope.
- i. Distinguish diagnostic workup for a patient with syncope or complaint of dizziness.
- j. Evaluate and predict treatment of a patient with syncope.
- k. Diagnose the following disorders utilizing clinical history, physical exam findings and lab or imaging data: Benign paroxysmal positional vertigo, Vestibular neuronitis, Labrynthitis

6. Neurology II: Demyelinating Disorders & Immune Mediated

Topics Included: Multiple sclerosis, transverse myelitis, PML, ADEM, Guillain-Barre syndrome, myasthenia gravis, Lambert-Eaton myasthenic syndrome

Reading References:

- Andreoli and Carpenter Cecil Essentials of Medicine
 - Ch. 120 Demyelinating and Inflammatory Disorders
 - Ch. 121 Neuromuscular Diseases: Disorders of the motor Neuron and Plexus and Peripheral Nerve Disease
 - Specific Acquired Polyneuropathies, pp.1084-1085
- Access Medicine
 - [Case Files Neurology: Multiple Sclerosis](#)
 - [Case Files Neurology: Ptosis \(Myasthenia Gravis\)](#)
 - [Case File Neurology: Guillain-Barré Syndrome](#)

Learning Objectives:

- a. Recognize the clinical history characteristic for the diagnoses above.

- b. Apply antibody testing in diagnosis of the above immune mediated diseases.
- c. Correlate findings on cerebral spinal fluid analysis and multiple resonance imaging to the diagnosis of multiple sclerosis.
- d. Recall the diagnostic criteria for multiple sclerosis.
- e. Recognize common treatments for relapsing episodes of multiple sclerosis.
- f. Formulate a plan for symptom management for multiple sclerosis.
- g. Compare and contrast the immune-mediated etiology of multiple sclerosis (MS).
- h. Recall the immune-mediated etiology, symptoms and diagnosis of GBS.
- i. Identify the complications that cause the increased morbidity/mortality in GBS patients.
- j. Recall the immune-mediated etiology, symptoms and diagnosis of myasthenia gravis (MG).
- k. Recall the immune-mediated etiology, symptoms, and diagnosis of Lambert Eaton myasthenic syndrome.
- l. Compare underlying pathophysiology in the development of the above demyelinating disorders.
- m. Formulate the appropriate work-up to distinguish these disorders.
- n. Diagnose demyelinating disorders based on history, physical examination, and testing results.

7. Neurology III: Disorders of Motor System & Nerves

Topics Included: Charcot-Marie Tooth, ALS, peripheral neuropathy

Reading References:

- Andreoli and Carpenter Cecil Essentials of Medicine
 - Ch. 121 Neuromuscular Diseases: Disorders of the motor Neuron and Plexus and Peripheral Nerve Disease
 - Amyotrophic Lateral Sclerosis, pp. 1078-1079
 - Disorders of the Peripheral Nerves, pp. 1080-1084
 - Specific Hereditary Polyneuropathies: Charcot-Marie -Tooth Disease, pp. 1085-1086
- AccessMedicine
 - [Case File Neurology: Amyotrophic Lateral Sclerosis](#)
 - [Case Files Neurology: Foot Drop](#)

Learning Objectives:

- a. Identify other common disorders that should be included in the differential diagnosis of central and peripheral demyelinating disorders.
- b. Recall the underlying pathophysiology responsible for development of the disorders below.
 - i. Charcot-Marie-Tooth disorder
 - ii. Radiculopathy
 - iii. Peripheral neuropathy
 - iv. Amyotrophic lateral sclerosis
- c. Distinguish lower motor neuron syndrome versus upper motor neuron syndrome.
- d. Interpret cerebral spinal fluid analysis to aid in diagnosis of specific motor neuron disorders.
- e. Predict appropriate therapy for above neuropathies.
- f. Diagnose disorders associated with peripheral nerves, including neuropathy, hereditary neuropathies and acquired peripheral neuropathies.
- g. Relate complications and prognosis to underlying disease pathophysiology.
- h. Recognize the etiologies of the above disorders.
- i. Identify treatments for the above disorders.

8. Neurology IV: Disorders of special senses

Topics Included: Glaucoma, cataract, uveitis, macular degeneration, trigeminal neuralgia, Bell palsy

Reading References:

- Andreoli & Carpenter's Cecil Essentials of Medicine:
 - Ch. 111 Headache, Neck and Back Pain, and Cranial Neuralgias
 - Ch. 112 Disorders of Vision and Hearing
- [AccessMedicine Case Files Neurology: Facial Paralysis](#)

Learning Objectives:

- a. Recognize the clinical presentation and management of cataracts.
- b. Distinguish between wet age-related macular degeneration (AMD) and dry AMD.
- c. Recognize management strategies for macular degeneration.
- d. Identify the clinical presentation and management of:
 - i. primary open angle glaucoma
 - ii. primary congenital glaucoma
 - iii. angle closure glaucoma
- e. Recognize the clinical presentation of common forms of secondary glaucoma.
- f. Recall uveitis and ocular manifestations of autoimmune disease:
 - i. sarcoidosis
 - ii. rheumatoid arthritis
 - iii. systemic lupus erythematosus
- g. Recognize the clinical presentation, physical examination findings, and laboratory data associated with Bell's palsy.
- h. Recall the differential diagnosis of unilateral facial palsy and neuralgia, including trigeminal neuralgia.
- i. Identify infectious agents associated with facial nerve palsy.
- j. Recognize the complications and treatment of Bell's palsy.

9. Gastroenterology I: Upper GI Disorders

Topics Included: GERD, achalasia, Barrett esophagus, eosinophilic esophagitis, Schatzki rings, diffuse esophageal spasm, esophagitis, H. Pylori gastritis and PUD, gastroparesis and Zollinger–Ellison (ZE) Syndrome

Reading Reference:

- Andreoli and Carpenter Cecil Essentials of Medicine
 - Ch. 33 Common Manifestations of Gastrointestinal Disease, Subchapters: Abdominal Pain and Malabsorption
 - Ch. 35 Esophageal Disorders
 - Ch. 36 Diseases of the Stomach and Duodenum

Learning Objectives:

- a. Identify the etiology of Barrett's esophagitis and role of H. pylori in peptic ulcer disease, including methods of testing for Barrett's and H. pylori
- b. Apply patient education on lifestyle changes at home and the use of H-2 blockers and PPI including side effects
- c. Identify the common causes of dysphagia and odynophagia
- d. Recall evidence-based treatment strategies for H. pylori gastritis
- e. Recognize the differences between ulcer and non-ulcer (functional) dyspepsia
- f. Develop patient education on appropriateness of follow-up and testing for eradication in patients with H. pylori gastritis
- g. Identify common signs and symptoms of gastric emptying disorders
- h. Recall the laboratory testing for diagnosing ZE syndrome

10. Gastroenterology II: Lower GI Disorders

Topics Included: Crohn's, ulcerative colitis IBS, diverticulitis, celiac, mesenteric ischemia

Reading Reference:

- Andreoli and Carpenter Cecil Essentials of Medicine, 9th edition
 - Ch. 33 Common Manifestations of Gastrointestinal Disease, Subchapters: Abdominal Pain and Malabsorption
 - Ch. 37 Inflammatory Bowel Diseases
 - Ch. 96 Infectious Diarrhea

Learning Objectives:

- a. Identify symptoms and signs indicative of an acute/surgical abdomen.
- b. Differentiate the most important and likely causes of a patient's abdominal pain.
- c. Recognize specific history, physical exam, and laboratory findings that distinguish between the various causes of abdominal pain.
- d. Relate a basic management plan for diverticulitis
- e. Define irritable bowel syndrome and relate its management.
- f. Differentiate infectious and non-infectious diarrhea utilizing history and clinical presentation.
- g. Utilize common diagnostic tests for diarrhea to determine a diagnosis of malabsorption versus other causes of diarrhea.
- h. Differentiate ulcerative colitis from Crohn's disease
- i. Relate basic management of inflammatory bowel disease.

11. Chronic Renal Failure and Dialysis

Topics Included: Complications of CKD, indications for dialysis, stages of CKD

Reading Reference: Andreoli and Carpenter's Cecil Essentials of Medicine, Ch. 32: Chronic Kidney Disease

Learning Objectives:

- a. Identify the most common causes of chronic kidney disease (CKD).
- b. Distinguish etiologies of chronic kidney disease utilizing clinical history and diagnostic testing.
- c. Relate the pathophysiology and clinical signs of uremia.
- d. Recognize the indications for dialysis.
- e. Relate the pathophysiology of hyperkalemia, hypocalcemia, and hyperphosphatemia in the setting of CKD.
- f. Identify indications for angiotensin converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) in the management of CKD.
- g. Distinguish treatment with phosphate binders and calcium replacement in CKD.
- h. Identify the staging of CKD based on glomerular filtration rate (GFR).

12. Rheumatology I

Topics Included: SLE, dermatomyositis, Sjogren's, fibromyalgia

Reading Reference:

- Andreoli and Carpenter Cecil's Essentials of Medicine, 9th Edition
 - Ch. 28 Glomerular Diseases
 - Lupus Nephritis, pp. 321-322.
 - Ch. 76 Approach to the Patient with Rheumatic Disease
 - Ch. 79 Systemic Lupus Erythematosus
 - Ch. 84 Non-articular Soft Tissue Disorders
 - Fibromyalgia Syndrome, pp. 811-812
 - Ch. 85 Rheumatic Manifestations of Systemic Disorders; Sjogren's Syndrome

Learning Objectives:

- a. Formulate an approach to patients with possible rheumatologic disease.
- b. Identify the typical clinical presentation for the following:
 - i. systemic lupus erythematosus (SLE)

- ii. dermatomyositis
- iii. Sjogren's
- iv. fibromyalgia
- c. Identify the associated laboratory and diagnostic criteria for the following:
 - i. Systemic lupus erythematosus (SLE)
 - ii. Dermatomyositis
 - iii. Sjogren's
 - iv. fibromyalgia
- d. Classify the types of glomerulonephritis seen in SLE.
- e. Recognize treatment strategies for the following:
 - i. Systemic lupus erythematosus (SLE)
 - ii. Dermatomyositis
 - iii. Sjogren's
 - iv. Fibromyalgia

13. Rheumatology II

Topics Included: RA, Scleroderma, CREST, psoriatic arthritis, reactive arthritis

Reading Reference:

- Andreoli and Carpenter Cecil's Essentials of Medicine
 - Ch. 77 Rheumatoid Arthritis
 - Ch. 78 Spondyloarthritis
 - Ch. 80 Systemic Sclerosis

Learning Objectives:

- a. Identify extra-articular manifestations of rheumatoid arthritis.
- b. Formulate treatment for a patient with rheumatoid arthritis.
- c. Compare and contrast the risk factors, epidemiology, pathophysiology, clinical presentations and diagnostic criteria for the following immune-mediated disorders:
 - i. rheumatoid arthritis
 - ii. systemic sclerosis
 - iii. CREST
 - iv. Psoriatic arthritis
- d. Compare and contrast the rationale for approach to treatment of rheumatoid arthritis and psoriatic arthritis based on clinical presentation and laboratory diagnosis.
- e. Identify the articular and extra-articular clinical patterns of psoriatic arthritis

14. Vasculitis

Topics Included: Temporal arteritis, granulomatous with polyangitis, microscopic polyangitis, Churg-Strauss syndrome, polyarteritis nodosa, secondary vasculitis, Takayasu's arteritis

Reading References:

- Andreoli and Carpenter's Cecil's Essentials of Medicine, Ch. 81: Systemic Vasculitis
- [Access Medicine Case Files Internal Medicine: Headache/Temporal Arteritis](#)

Learning Objectives:

- a. Identify common clinical features of vasculitis
- b. Categorize vasculitides by vessel size.
- c. Correlate pathophysiology to the clinical presentation of the above vasculitides.
- d. Recognize etiologies of secondary vasculitis.
- e. Recognize common physical exam findings for the above vasculitides.
- f. Select the appropriate rheumatologic laboratory study to diagnose vasculitis.
- g. Predict treatment plans for the vasculitides.
- h. Recognize complications of vasculitides.
- i. Predict prognosis of patients with vasculitides.

15. Perioperative Medicine

Topics Included: Pre-operative clearance, perioperative management of anticoagulation, diabetes, hypertension

Reading References:

- Andreoli and Carpenter's Cecil Essentials of Medicine, Ch. 24: Preoperative and Postoperative Care
 - AccessMedicine
 - [Case Files Anesthesiology: Preoperative Evaluation](#)
 - [Case Files Surgery: Perioperative Management of Antithrombotic and Antiplatelet Therapies](#)
- a. Estimate functional status of a patient
 - b. Identify clinical markers utilized to estimate cardiac risk in preoperative patients
 - c. Select appropriate cardiac testing for a preoperative patient
 - d. Predict which patient medications should be stopped or continued in a preoperative patient
 - e. Predict which patients should receive bridging therapy for antithrombotic medications
 - f. Stratify the individual's thromboembolic risk either as high risk, moderate risk, or low risk

16. Pulmonology

Topics Included: Interstitial lung disease, sarcoidosis, fibrosis, aspergillosis, pulmonary hypertension

Reading Reference:

- Andreoli and Carpenter's Cecil Essentials of Medicine
 - Ch. 14 General Approach to Patients with Respiratory Disorders
 - Ch. 17 Interstitial Lung Diseases
 - Ch. 18 Pulmonary Vascular Diseases

Learning Objectives:

- a. Differentiate diffuse parenchymal lung diseases utilizing history and clinical examination.
- b. Identify clinical presentation for interstitial and pulmonary vascular lung diseases
- c. Identify key history points for patients with pulmonary diseases including exposure and medication history
- d. Compare and contrast various interstitial lung diseases
- e. Identify common epidemiology for sarcoidosis
- f. Distinguish sarcoidosis utilizing clinical presentation and diagnostic testing
- g. Identify standard treatment therapies for interstitial lung diseases
- h. Categorize pulmonary hypertension utilizing the World Health Organization Classification
- i. Identify common clinical presentation and diagnostic testing for pulmonary hypertension
- j. Identify standard treatment regimens for pulmonary hypertension

17. Edema

Topics Included: Differential diagnosis, peripheral edema, generalized, localized, and treatment, lymphedema

Reading Reference: Andreoli and Carpenter's Cecil Essentials of Medicine, Ch. 3: Evaluation of the Patient with Cardiovascular Disease

Learning Objectives:

- a. Classify edema based on etiology
- b. Develop a differential diagnosis for localized, peripheral, and generalized edema.
- c. Diagnose lymphedema based on clinical history and physical examination
- d. Recognize the treatment of the common types of edema.

18. Lymphadenopathy

Topics Included: Differential diagnosis of all causes, diagnostic evaluation, treatment of non-cancerous causes

Reading Reference: Andreoli and Carpenter's Cecil's Essentials, Ch. 49: Disorders of Lymphocytes

Learning Objectives:

- a. Define features of benign vs. pathologic lymphadenopathy.
- b. Create a differential diagnosis for lymphadenopathy in adult patient based on clinical features and location of the lymphadenopathy.
- c. Classify causes of adenopathy
- d. Compare and contrast anatomy and lymphadenopathy location.
- e. Diagnose lymphadenopathy etiologies utilizing clinical presentation such as age, associated symptoms, duration, recent exposures, medications and physical exam findings.
- f. Devise a diagnostic workup for a patient with lymphadenopathy
- g. Interpret results of a diagnostic workup for a patient with lymphadenopathy.
- h. Identify the various types of biopsies and indications for each.

Osteopathic Manipulative Medicine and the Osteopathic approach to clinical cases are covered in the monthly workshops and tested on the OMM end-of-rotation exams. Students are responsible for reviewing the OMM Syllabus and meeting the learning objectives covered in each month's workshop.