

# ADVANCED MEDICAL IMAGING (AMI)

## **AMI 515. Introduction to Magnetic Resonance Imaging. 3 Credits.**

Magnetic resonance imaging is studied as it pertains to diagnostic imaging. Topics include mathematics, physical principles, imaging concepts, equipment, image quality, clinical applications and biologic effects of MRI. Prerequisite: ARRT certification or permission of the department.

**Corequisites:** Take AMI 515L

**Offered:** Every year, Summer

## **AMI 515L. Magnetic Resonance Imaging Principles I - Lab Practicum. 1 Credit.**

This course demonstrates the principles presented in the didactic component of the course, AMI 515, Introduction to Magnetic Resonance Imaging. This lab complement enables the student to develop hands-on skills with the Toshiba Vantage 1.5 Tesla Magnetic Resonance Imaging scanner. Training includes the operation of the hardware and software components of the equipment with the objective to optimize image quality. This course also influences the student's development of patient-care skills dealing with claustrophobia and safety concerns regarding MRI. Prerequisite: ARRT certification or permission of the department.

**Corequisites:** Take AMI 515

**Offered:** Every year, Summer

## **AMI 516. Advanced MRI Principles and Imaging. 3 Credits.**

This course is designed for the student who has successfully passed AMI 515 (Introduction to Magnetic Resonance Imaging) and/or for the technologist actively working in the MRI field. The main objective for this course is to expand on the basic MRI physics and advanced MRI imaging applications.

**Corequisites:** Take AMI 516L

**Offered:** Every year, Fall

## **AMI 516L. Magnetic Resonance Imaging Principles II - Lab Practicum. 1 Credit.**

This course demonstrates the principles presented in the didactic component of the course, AMI 516 (Advanced MRI Principles and Imaging). This lab complement enables the student to further develop hands-on skills with the Toshiba Vantage 1.5 Tesla Magnetic Resonance Imaging scanner and expand upon the basic MRI physics and advanced imaging applications. Training includes the operation of the hardware and software components of the equipment with the objective to optimize image quality. This course also influences the student's continued development of patient care skills dealing with claustrophobia and safety concerns regarding MRI.

**Corequisites:** Take AMI 516

**Offered:** Every year, Fall

## **AMI 517. Magnetic Resonance Imaging Clinical I. 2 Credits.**

This practicum involves providing clinical experience in the field of magnetic resonance imaging (MRI) at various facilities, including affiliated hospitals and imaging centers. Students attending clinic perform examinations in MRI under the direct or indirect supervision of a certified radiologic technologist. The experience gained through these rotations continually supports the need to obtain quality diagnostic images while promoting and maintaining a safe work environment as well as appropriate patient care. Prerequisite: Successful completion of all previously sequenced programmatic coursework.

**Prerequisites:** Take AMI 515 AMI 515L.

**Corequisites:** Take AMI 516 AMI 516L.

**Offered:** Every year, Fall

## **AMI 518. Magnetic Resonance Imaging Clinical II. 2 Credits.**

This practicum is a continuation of AMI 517 and involves providing clinical experience in the field of magnetic resonance imaging (MRI) at various facilities, including affiliated hospitals and imaging centers. Students attending clinic perform examinations in MRI under the direct or indirect supervision of a certified radiologic technologist. The experience gained through these rotations continually supports the need to obtain quality diagnostic images while promoting and maintaining a safe work environment as well as appropriate patient care. Prerequisite: Successful completion of all previously sequenced programmatic coursework.

**Prerequisites:** Take AMI 515 AMI 515L AMI 516 AMI 516L AMI 517.

**Offered:** Every year, Spring

## **AMI 523. Advanced Sectional Anatomy. 3 Credits.**

This sectional anatomy course includes head, thorax, abdomen, pelvis and extremities. In addition to coronal, sagittal and axial imaging examined, oblique sections and three-dimensional reconstruction are included. Only for students enrolled in the AMI program.

**Prerequisites:** None

**Offered:** Every year, Summer

## **AMI 530. Mammography and Bone Densitometry Clinical I. 2 Credits.**

This practicum involves providing clinical experience in the field of mammography and bone densitometry at various facilities, including affiliated hospitals and imaging centers. Students attending clinic perform examinations under the direct or indirect supervision of a certified radiologic technologist. The experience gained through these rotations continually supports the need to obtain quality diagnostic images while promoting and maintaining a safe work environment as well as appropriate patient care. Prerequisite: Successful completion of all previously sequenced programmatic coursework.

**Prerequisites:** Take AMI 534 AMI 540 AMI 541L.

**Offered:** Every year, Fall

## **AMI 531. Mammography and Bone Densitometry Clinical II. 2 Credits.**

This practicum is a continuation of AMI 530 and involves providing clinical experience in the field of mammography and bone densitometry at various facilities, including affiliated hospitals and imaging centers. Students attending clinic perform examinations under the direct or indirect supervision of a certified radiologic technologist. The experience gained through these rotations continually supports the need to obtain quality diagnostic images while promoting and maintaining a safe work environment as well as appropriate patient care. Prerequisite: Successful completion of all previously sequenced programmatic coursework.

**Prerequisites:** AMI 534 AMI 540 AMI 541L AMI 530.

**Offered:** Every year, Spring

- AMI 534. Bone Densitometry.** **1 Credit.**  
 This distance learning course provides students with an overview of the history of bone densitometry as well as knowledge in the areas of osteoporosis and bone health, equipment, quality control, patient preparation and safety, and scanning. The course encompasses didactic components to cover all relevant material currently consistent with the ARRT certification examination. Prerequisite: ARRT Registered Radiologic Technologist.  
**Prerequisites:** None  
**Offered:** Every year, Summer Online
- AMI 537. Computed Tomography Clinical I.** **2 Credits.**  
 This practicum involves providing clinical experience in the field of computed tomography (CT) at various facilities, including affiliated hospitals and imaging centers. Students attending clinic perform examinations in CT under the direct or indirect supervision of a certified radiologic technologist. The experience gained through these rotations continually supports the need to obtain quality diagnostic images while promoting and maintaining a safe work environment as well as appropriate patient care. Prerequisite: Successful completion of all previously sequenced programmatic coursework.  
**Prerequisites:** Take AMI 538 AMI 538L.  
**Offered:** Every year, Fall
- AMI 538. Introduction to CT Scanning.** **3 Credits.**  
 Computed tomography (CT) scanning as it pertains to diagnostic imaging is studied. Topics include principles, physics, image reconstruction, equipment, image quality, radiation dose, specialized techniques, diagnostic applications and some cross-sectional anatomy. Prerequisite: ARRT certification or permission of the department.  
**Prerequisites:** None  
**Offered:** Every year, Summer
- AMI 538L. Computed Tomography Lab I.** **1 Credit.**  
 The course demonstrates the principles presented in the didactic component of the course, AMI 538, and enables the student to develop hands-on skills with the Toshiba Aquilion 64 slice computed tomography unit. Training includes the operation of the hardware and software components of the equipment with the objective to optimize image quality and minimize patient radiation dose. Prerequisite: ARRT certification or permission of the department.  
**Corequisites:** Take AMI 538.  
**Offered:** Every year, Summer
- AMI 539. Computed Tomography Clinical II.** **2 Credits.**  
 This practicum is a continuation of AMI 537 and involves clinical experience in the field of computed tomography at various facilities, including affiliated hospitals and imaging centers. Students attending clinic perform examinations in CT under the direct or indirect supervision of a certified radiologic technologist. The experience gained through these rotations continually supports the need to obtain quality diagnostic images while promoting and maintaining a safe work environment as well as appropriate patient care. Prerequisite: Successful completion of all previously sequenced programmatic coursework.  
**Prerequisites:** Take AMI 538 AMI 538L AMI 537.  
**Offered:** Every year, Spring
- AMI 540. Principles of Mammography.** **3 Credits.**  
 This course provides an overview of the history of mammography as well as fundamental knowledge in the areas of anatomy, physiology and pathology of the breast, mammographic equipment and instrumentation, positioning and technique for mammography. Also covered are methods of patient education and quality control. The course prepares students for the ARRT Mammography Certification Examination and meets all ACR/FDA training requirements. Prerequisite: ARRT certification or permission of the department.  
**Prerequisites:** None  
**Offered:** Every year, Summer
- AMI 541L. Mammography and Bone Densitometry Lab.** **2 Credits.**  
 The course demonstrates the principles presented in the didactic component of the courses, AMI 534 and AMI 540, and enables the student to develop hands-on skills with the on-site Hologic Mammography and Bone Densitometry units. Training includes the operation of the hardware and software components of the equipment with the objective to optimize image quality and minimize patient radiation dose. Only for students enrolled in the AMI program.  
**Corequisites:** Take AMI 534 and AMI 540  
**Offered:** Every year, Summer
- AMI 545. Women's Health and Imaging.** **3 Credits.**  
 This course provides a thorough look at women's health and disease with a focus on diagnostic imaging. Students examine common health factors for females including pathophysiology, family history, socioeconomic status and diagnostic procedures. This course investigates common health topics for the betterment of overall care of self, community and the health care consumer enabling the health professional to answer questions and have a general understanding of the diseases that may be encountered in health care practice. Program content is dynamic and is modified each year to represent the most current data and statistics. Prerequisite: Successful completion of all previously sequenced programmatic coursework.  
**Prerequisites:** None  
**Offered:** Every year, Fall
- AMI 560. Pathology for CT and MRI Technologists.** **3 Credits.**  
 This course covers identification, pathophysiology and pattern recognition of common pathologies observed in computed tomography and magnetic resonance imaging. Normal and abnormal comparisons are presented. Prerequisite: Successful completion of all previously sequenced programmatic coursework.  
**Prerequisites:** None  
**Offered:** Every year, Spring
- AMI 570. Capstone I.** **1 Credit.**  
 This capstone course is the first in the advanced medical imaging curriculum, which integrates advanced imaging and business course material. Students begin developing a consulting/case project that is relevant to current and emerging practice areas in imaging. Students apply knowledge of project management, critical analysis and professional presentations. Prerequisite: Successful completion of all previously sequenced programmatic coursework.  
**Prerequisites:** None  
**Offered:** Every year, Fall

**AMI 575. Capstone II.****3 Credits.**

This final capstone course integrates the knowledge and skills gained throughout the program. The course focuses on the design and implementation of a consulting case/project, including a comprehensive analysis of organizational issues and proposal of appropriate recommendations and implementation plans. The result is a professionally written consulting paper and/or presentation. Prerequisite: Successful completion of all previously sequenced programmatic coursework.

**Prerequisites:** None**Offered:** Every year, Spring