Course Syllabus
SEMESTER
School of Nursing and Health Professions
MRI Department

Course Name:	**MRI Procedures I**
Course & Section Number:	**MRI 104-XX**
Meeting Day(s) & Time(s):	
Credits:	**4**
Contact Hours:	**3 hours lecture, 3 hours laboratory**
Instructor's Name:	
Office Hours & Location:	
OCC Phone:	
OCC Email:**	
Additional Contact Information:	

*Please call me (name); it is my preferred name. If you have a preferred name, please let me know so that I can use it.

**Please use only Owens email for course communications.

Catalog description:
Foundational concepts of the physical principles of magnetic resonance imaging are presented. MR imaging parameters, sequence selections and imaging options are covered.

Prerequisite/Corequisites:
Co-requisites: MRI 103
Prerequisites: MRI 100 with a 'C' or better

Course Materials:

Burghart, G., & Finn, C. A. (2011). *Handbook of MRI scanning* (1st ed.). Mosby.

Westbrook, C (2022). *Handbook of MRI Technique*. Hoboken, NJ: Wiley, Blackwell.

*If a **print book, e-book, or access code** is required for class, you can access the Owens Community College e-Campus Bookstore by accessing the online link, called "Find Books" on the course schedule for each course section.*

ISBN13: 9781951294083 – 22 Month Clover Learning Student Plan

***OER and Owens Community College Library Resources** (Open Educational Resources are free online materials for instructor and student use. Some OER material may be available in print in the Owens Community College Library.)*

What You Will Learn in the Course

Course Objectives:
Course will:

1. Introduce students to the imaging parameters, patient positioning, and use of imaging accessories in the completion of MR procedures of the central nervous system, neck and musculoskeletal system of the lower extremity.
2. Presents anatomy identification and image analysis of MR images relating to the central nervous system, neck and musculoskeletal system of the lower extremity.
3. Introduce students to image evaluation criteria and the adjustment of imaging protocol to result in optimal diagnostic MR imaging.
4. Demonstrate competency in the application of course concepts in the laboratory setting.

Student Learning Outcomes:
Students will:

	Outcome	Where Assessed
1	Identify the imaging considerations in MR and explain their application in the performance of imaging procedures of the central nervous system, neck and musculoskeletal system of the lower extremity.	Quizzes, Tests, Exams, Practicals
2	Identify, categorize, explain, and discuss the function, construction, and optimal use of MR imaging accessories.	Homework, Quizzes, Tests, Exams, Practicals
3	Identify anatomical structures of the central nervous system, neck and musculoskeletal system of the lower extremity on MR images..	Homework, Quizzes, Tests, Exams, Practicals
4	Analyze MR images and describe adjustments in MR protocol which will enhance image quality.	Homework, Quizzes, Tests, Exams, Practicals
5	Describe and explain terminology and factors related to MR imaging.	Homework, Practicals
6	Successfully perform simulations of MRI procedures of the	Practicals

	Outcome	Where Assessed
	central nervous system, neck and musculoskeletal system of the lower extremity in the laboratory setting.	
7	Demonstrate the patient communication and care skills, technical competence, and professional characteristics expected of a student MRI technologist	Practicals

Institutional General Education Competencies:
As a student at Owens Community College, you will take General Education courses as part of your degree program. While specific to the General Education courses, will be reinforced in many of your degree program major courses and may be measured in your capstone course(s) and others as identified.

Technology, Lab, and File Requirements:

Microsoft Office 365
https://www.owens.edu/office365/

Respondus
https://download.respondus.com/lockdown/download.php?id=139313370

Academic Support

Disability Services Resource Center: If you have a disability or acquire one, you may be entitled to receive reasonable accommodations intended to assure you an equal opportunity to participate in and benefit from the program. To receive more information or to register for accommodations, please contact the Disability Resource Center at 567-661-7007, email disability@owens.edu, visit https://www.owens.edu/disability/, or stop by College Hall 116.

Tutoring Services: Owens Community College offers academic tutoring and assistance in a variety of subjects including: accounting, computing, economics, mathematics, science, and writing. For more information go to: https://www.owens.edu/successcenters/.

Counseling Services: Counseling Services provides assistance to students experiencing personal, educational, interpersonal/relationship, family, social, or psychological difficulties. If you feel you may benefit from this service, please contact them at counselingservices@owens.edu. More information is at https://www.owens.edu/counseling/.

Campus and Community Connections: The Center for Campus and Community Connections (College Hall 123) is a walk-in office created to provide retention support through resource stability initiatives and community connections. Go here for more information: https://www.owens.edu/connection/ or contact connections@owens.edu

Owens Library: The Owens Library offers two locations (Toledo and Findlay) as well as online resources. For more information visit https://www.owens.edu/library/.

Students can find more information on campus resources, student support, student life, and security at this link.

General Information

Student Code of Conduct: All students are expected to follow Owens Community College's Student Code of Conduct, which includes academic honesty, encompassing plagiarism. See the Board Policy for more information.

Anti-Discrimination and Harassment & Title IX/Sexual Misconduct: All students, faculty, and staff are expected to follow Owens Community College's Anti-Discrimination and Harassment Policy and the College's Title IX Policy/Sexual Misconduct Procedures and Guidelines. The College strictly prohibits and will not tolerate harassment, discrimination, intimidation, or hostile/offensive working or learning environments.

Religious Accommodations: A student seeking an accommodation for an absence permitted under Ohio's Testing Your Faith Act must provide the instructor with a written email notice with the specific dates for an absence, and must do so not later than fourteen (14) days after the first day of instruction. Alternative accommodations are not retroactive, and no academic penalty will be imposed for an absence under the policy*. The request for an alternative accommodation will be kept confidential. Students with questions about a religious accommodation under Ohio's Testing your Faith Act may contact the College's Office of Academic Affairs: provost@owens.edu The policy may be found on the Owens website: 3358:11-2-63 Accommodation for a Student Absence for the Observance of Religious Beliefs and Practices Policy

Document Collection: Throughout the semester, your instructors may ask for a variety of assignments including tests and/or quizzes for student learning of institutional general education competencies or program assessment. Please save all your class materials until the end of the semester.

Classroom Admittance: OCC classes shall only be attended by the officially registered OCC students or perspective students, instructor of record, guest lecturer, or substitute. Visitors are not permitted to be in the classroom and should not be invited to attend or participate in the class. See FERPA regulations for more information.

Use of AI Tools: This course permits you to use artificial intelligence (AI) tools, such as chatbots, text generators, paraphrasers, summarizers, or solvers, to get guidance on assignments, as long as you do so in an ethical and responsible manner. Essentially, you can think of these tools as ways to help you learn but not to entirely create work for assignments like discussion board posts, essays, presentation slides, and so on. AI is more like your tutor or TA, not a replacement for your independent thinking.
This means that you must:

- Not use AI tools to replace your own thinking or analysis or to avoid engaging with the course content.
- Cite or explain any AI tools you use. Provide the name of the AI tool, the date of access, the URL of the interface, and the specific prompt or query you used to generate the output.

- Be transparent and honest about how you used the AI tool and how it contributed to your assignment. Explain what you learned from the AI tool, how you verified its accuracy and reliability, how you integrated its output with your own work, and how you acknowledged its limitations and biases.

You are accountable for any mistakes or errors made by the AI tool. Always check and edit the output before submitting your work. If you discover any inaccuracies or inconsistencies in the output after submission, notify the instructor immediately and correct them as soon as possible. Using AI tools in an unethical or irresponsible manner, such as copying or paraphrasing the output without citation or transparency, using the output as your own work without verification or integration, or using the output to misrepresent your knowledge or skills, is considered a form of academic dishonesty and will result in a zero grade for the assignment and possible disciplinary action. If you have any questions about what constitutes ethical and responsible use of AI tools, please consult with the instructor **before** submitting your work.
NOTE: Some instructors will also list specific acceptable and unacceptable uses or include a statement like "All written assignments, projects, and exams must be completed independently."

Student Responsibilities & Instructor Expectations

Students represent themselves, their program, and the department and are expected to maintain professionalism in attitude, behavior, and appearance. In lecture, lab, or clinical settings, students must:

- Arrive early, stay the full session, and notify faculty of absences at least 30 minutes in advance. Make-up work is at the instructor's discretion.
- Come prepared with required materials and complete readings.
- Submit all assignments on time; late work may not be accepted or may be penalized.
- Show respect and courtesy to peers, faculty, patients, and visitors.
- Listen attentively and support others' contributions.
- Seek feedback from instructors and MRI professionals.
- Address concerns promptly by speaking directly with faculty or appropriate individuals.

Instructor Expectations:

The instructor is committed to providing a structured, respectful, and engaging learning environment that supports student success. Students can expect the following:

- The instructor will be prepared for each class session with relevant content, materials, and activities aligned with course objectives.
- The instructor will respond to student emails and inquiries within 24–48 hours on weekdays and will communicate clearly regarding assignments, deadlines, and expectations.
- Timely, constructive feedback will be provided on assignments and assessments to support student learning and improvement.
- The instructor will promote a respectful and inclusive classroom atmosphere where all students feel valued and supported.

- The instructor will be available during posted office hours and by appointment to offer additional academic support or clarification as needed.

Students are encouraged to engage fully in the course and uphold their responsibilities as active participants in the learning process.

How Grades are Determined and Major Assignments

Grading Procedure:

The course is divided into two sections:

1. Lecture 50%
2. Laboratory 50%

Grades will be calculated on the following scale.

93% and Above	A
85% to 92%	B
76% to 84%	C
60% to 75%	D
59% or Below	F

Students must earn a passing grade of 76% in both the lecture and laboratory components of the course. If either of the percentages earned is less than 76%, the student will earn a grade of "D" for the course and be removed from the program.

The final course grade is to be computed using the following weights.

Lecture Evaluation Measure Assessed	Value	Student Learning Outcome
Homework as Assigned	10%	2,3,4,5
Tests	20%	1,2,3,4
Comprehensive Final Exam	20%	1,2,3,4

Home work assignments will be given which will require students to complete outside of class time. Other assignments may be given as deemed necessary for topic covered. Total points of homework will equal 10% of grade. Pop up quizzes may be given which will count as an assignment grade.

Six tests will be given with overall points being 20% of the grade.

A Final exam, worth 20% of the course grade, will be comprehensive.

Laboratory Evaluation Measure Assessed	Value	Student Learning Outcome
MRI Anatomy/Image ID Exams	24%	3,4
Quizzes	10%	1,2,3,4
MRI Anatomy Comprehensive Final Exam	10%	3,4
Homework	6%	1,3,4,6,7
MRI Module Practicals	Pass or Fail	4,5,6,7

Six image IDs will be given, total points equaling 24% of grade. **Students must pass these exams with a 76% or higher**. See the MIT procedure manual for more information.
Six quizzes will be given at the beginning of lab class covering material in lab manual corresponding to material/anatomy/protocols learning in lab that day/week. Total points equaling 10% of overall grade.
One comprehensive image ID will be given, worth 10% of the course grade.
ScanLabMR hmwk assignments will be given worth 6% of your grade. If not turned in by due date there will be an automatic 10% deduction (plus any other deductions). A zero will be entered for assignments later than 1 week.

All practicals must be passed or the student will earn a D or F for the course. A practical must be passed before moving on to the next practical. According to the procedure manual, **all** practicals must be passed before Dec 10th. Prior to a student's third practical attempt, a meeting with the lab instructor & Suellen (chair of program) will be done to assess the importance of this last attempt and offer assistance as needed. (Refer to procedure manual, section IV).

Students must come dressed in black scrubs for lab portion of class. These lab sessions mimic what will be expected once students attend clinic. Professionalism, good hygiene, timeliness, and respect for others and equipment are expectations that will be adhered to.

All previously taken chapter tests and Image ID exams must be completed before the final exam and comprehensive Image ID which are scheduled for finals week.

Class Assignments / Calendar

DATE	SLO	Topics to be covered in **Lecture**	Topics to be covered in **Lab**	Chapters covered
WEEK 1	1,2,3,4,5,7	Review Syllabus RoutineBrain/MS/SZ scanning Scanlabmr overview Patient care & safety, Contrast MRA brain/COW MIP/MPR MRI TMJ MRI Sinuses	Review of lab manual MR questionnaire MR orders Practice interviewing Hands on scanning of Brain w/o	**Chapters 1, 6, 7** **Ch. 8** (pgs 73-91) in Westbrook Preface, Patient preparation, safety guidelines, Ch 1., pgs 5-13 & 32-39 in Burghart **Ch. 8** – Westbrook Pgs. 137-141 **Ch. 1**, Burghart Pgs. 49-58 **Ch. 8** – Westbrook Pgs. 109- 112, 133-136 **Ch. 1** – Burghart Pgs. 42-48
WEEK 2	1,2,3,4,5,7		MR questionnaire MR orders Practice interviewing Hands on scanning of Brain w/o, Brain w/wo (MS), SZ protocols Quiz	Same as above **Ch. 8** – Westbrook Pgs. 73-91 **Ch. 1**, Burghart Pgs. 5-13 **Ch. 1** – Burghart Pgs. 32-39
WEEK 3	1,2,3,4,5,6,7	**TEST #1- Lecture Image ID #1**	**Practical #1** MRI Routine Brain	
WEEK 4	1,2,3,4,5	Specialty Brain--- IAC, Pituitary, Orbits Cranial Nerves	Quiz Hands- on scanning of Specialty Brain protocols	**Ch. 8.** Westbrook Pgs. 92-108 **Ch. 1** – Burghart Pgs. 14-31
WEEK 5	1,2,3,4,5,6,7	**TEST #2 - Lecture Image ID #2**	**Practical #2** MRI Specialty Brain	
WEEK 6	1,2,3,4,5	MRI Cervical MRI Thoracic MRI Lumbar	Quiz	**Chapt. 9** – Westbrook Pgs. 142-166 **Chapt. 2** – Burghart

Sept.		SAR issues	Hands-on scanning of MRI cervical, thoracic, lumbar Protocols	Pgs. 101- 133
WEEK 7	1,2,3,4,5,6,7	**TEST #3- Lecture Image ID #3**	**Practical #3** MRI Spine- Cervical, Thoracic, Lumbar	
WEEK 8	1,2,3,4,5,7	MRI Hip MRI Femur (Vendor MRI Acronyms & Pulse sequences review – if time) Review of pulse sequences	Quiz Hands-on scanning of MRI Hip/ Femur (lower extremity long bones) Protocols	**Ch. 14-** Westbrook Pgs. 289-302 **Ch. 4** – Burghart Pgs. 198-215 (Ch. 3 Westbrook)
WEEK 9	1,2,3,4,5,6,7	**TEST #4- Lecture Image ID #4**	**Practical #4** MRI Hip MRI Femur	
WEEK 10	1,2,3,4,5,7	MRI Knee MRI Lower Leg Pediatric Imaging	Quiz Hands-on scanning of MRI Knee	**Ch. 14-** Westrbook Pgs. 303-315 **Ch. 4** – Burghart Pgs. 216-227 **Powerpoint Presentation** **Ch. 15** Westbrook
WEEK 11	1,2,3,4,5,6	MRI Ankle MRI Foot Venipuncture Parameter review	Hands on scanning of knee, ankle & foot	**Ch. 14** Westbrook Pgs 316-334 **Ch. 4** – Burghart Pgs. 228 - 241 Pwpt Presentation **Ch. 2 - Westbrook**
WEEK 12	1,2,3,4,5	**Test #5 – Lecture (knee, lower leg, pediatric) Image ID #5 (knee & lower leg)**		
WEEK 13	1,2,3,4,5,6,7	**TEST #6-Lecture (ankle, foot, MIP/MPR, parameter) Image ID #6**	Practical MRI Knee MRI Ankle MRI Foot	

		(ankle/foot)		
WEEK 14	1,2,3,4,5	Flow Artefacts Gating MRI Artefacts MRI Anatomy/Image review		
WEEK 15	1,2,3,4,5,6,7	Comprehensive Review for finals in MRI Procedures 1	Comprehensive Image ID	**Review for finals**
WEEK 16	1,2,3,4,5,6,7	**FINAL EXAM WEEK** **Lecture Material**		

Disclaimer: The instructor reserves the right to amend this syllabus as deemed necessary and will communicate such amendment to the students in the course. Please note that while unlikely, there is a possibility courses might need to change the delivery method due to external issues like public health concerns, weather issues, etc. If this happens, the college will communicate any changes via email and/or other communication methods.