MCR

Clinical Investigation

MCR 501: Experimental Clinical Research
This course will (1) introduce trainees to formulation of a research question and hypothesis testing and; (2) introduce trainees to various research methodologies and how they are used to answer clinical research questions. This is not a clinical trials design course but rather is focused on how a clinical paradigm is used to formulate a research question and develop a hypothesis.

Offered
Summer, 1 credit, Letter graded (A, A-, B+, etc.)

MCR 506: Biostatistics I for Clinical Scientists
This is Part One of a two-part biostatistics training sequence. This course serves as an introduction to the principles and methodologies of biostatistics for clinical researchers. The material covered includes probability and distribution, descriptive statistics, point and interval estimation, hypothesis testing, correlation, linear regression, ANOVA, ANCOVA, logistical regression, survival analysis, and non-parametric tests.

Prerequisite: High school algebra
Fall, 3 credits, Letter graded (A, A-, B+, etc.)

MCR 507: Biostatistics II
The second course in biostatistics in the clinical scientists training sequence is intended to further acquaint the trainees with the commonly used procedures covered in the first course and to learn to apply these procedures to real and simulated datasets using statistical software. As part of the course requirement, the trainees will need to complete a course project analyzing an appropriate research data set.

Offered
Spring, 3 credits, Letter graded (A, A-, B+, etc.)

MCR 514: Epidemiology for Clinical Scientists
The aims of this course are to introduce trainees to basic epidemiologic concepts, methods and topics, and to provide them with skills to critically evaluate published literature, interpret data, and develop and evidence based approach to medical practice. Upon completion, trainees will be able to apply basic epidemiologic principles and methods to problems encountered in clinical medicine.

Co-requisite: MCR 506
Fall, 3 credits, Letter graded (A, A-, B+, etc.)

MCR 525: Contemporary Topics in Clinical and Translational Research
This monthly lunchtime seminar is designed to expose clinical and basic science students to contemporary topics in clinical and translational research. Topics include "-Omics", Biobanking and Biorepositories, Biomedical Informatics, Imaging and Big Data. Lunch will be provided.

1 credit, S/U grading
May be repeated 3 times FOR credit.

MCR 549: Legal and Regulatory Issues in Clinical Research
Major contemporary legal and regulatory issues associated with scientific research will be discussed. Additionally, this course will introduce students to the history behind the regulations that safeguard human subjects, will educate students in detail about their responsibilities as clinical investigators.

Offered
Summer, 1 credit, Letter graded (A, A-, B+, etc.)

MCR 562: Data Management and Informatics for Clinical Scientists
This course provides students with computer and data management skills required to complete a research project. Questionnaire development, data processing and analysis, and issues surrounding data security are covered. Students will learn to use Excel, Access and Velos eResearch for data input and management, SPSS for data processing and analysis, and powerpoint and Word for presentations and report generation. Hands-on exercises are used to develop skills.

Offered
Fall, 3 credits, Letter graded (A, A-, B+, etc.)

MCR 566: Clinical Research Methods
This course aims to introduce trainees to the different aspects of clinical trial design, conduct, management and analysis; and to provide trainees with a basic understanding of the key elements of clinical trial design and practice.

2 credits, Fall term, Professor Leslie Hyman, PhD
2 credits, Letter graded (A, A-, B+, etc.)

MCR 577: Research in Population Health and Clinical Outcomes Research
This course provides an overview of research methods as applied to questions raised in the fields of population health and clinical science. It covers the topics of risk adjustment, cost assessment, access to, utilization and quality of care, outcomes and health status measurement, and health system performance.

Offered
Fall, 2-3 credits, Letter graded (A, A-, B+, etc.)

MCR 580: GCRC/SAC Scientific Review Process
Students will understand and participate in the process of scientific review of human subject research protocols submitted to the GCRC.

Offered
Fall, 1 credit, Letter graded (A, A-, B+, etc.)

MCR 601: Ethics and Professionalism in Clinical Research
Using an interative case-based format, the topics covered include the justification of human research and reasonable balance of risk versus benefits; the use of animals in biomedical research; issues of informed consent and IRB paperwork processing; the ethical challenges of clinical research; ethical concerns associated with genetic testing and screening; research involving minors and adults of questionable capacity to consent; conflict of interest and funding of research for individuals and institutions; investigator responsibilities with regard to fulfilling government regulations; scientific fraud and whistle blowing; the scientific community and mentoring; authorship and attribution; special populations and inclusion of minorities and; emergency research-related special requirements.

2 credits, Letter graded (A, A-, B+, etc.)

MCR 630: Technology Transfer
Students will be exposed to concepts including disclosing inventions, protecting intellectual property, working with industry/working with university faculty, licensing, collaborative agreements, intellectual property protection and management and commercialization.

Offered
Spring, 0-6 credits, Letter graded (A, A-, B+, etc.)

MCR 650: Molecular and Laboratory Methods in Clinical Research
The aims of this course are to introduce trainees to laboratory methods relevant to clinical research with an emphasis on molecular medicine.

Offered
Fall, 2-3 credits, Letter graded (A, A-, B+, etc.)

MCR 684: Writing a Research Proposal
This course will help students develop the skills necessary to design a research
proposals including framing the specific aims, evaluation of the literature, description of preliminary data and research methods, proposed biostatistical analysis and power calculations, defining eligibility criteria, and development of a safety plan, issues of recruitment including under-represented ethnic and racial groups.

**Offered**

*Summer, 1 credit, Letter graded (A, A-, B+, etc.)*

**MCR 692: Research in Progress**

This course meets weekly and is attended by all trainees and mentors. Trainees present updates of their research endeavors and receive input from experienced mentors. Trainees are exposed to discussion among mentors on research design and interpretation.

**Offered**

*Fall and Spring, 1 credit, S/U grading*

**MCR 693: Clinical Research Opportunities at Stony Brook University and Affiliated Institutions**

The aims of this series are to familiarize trainees with the range and breadth of multidisciplinary clinical research carried out at Stony Brook and its affiliated institutions, and to provide examples of successful team approaches to study design, data analysis and ethical issues in clinical research. At each semester, a research team will be highlighted that will describe how the team came to be formed followed by a presentation about the research hypothesis, study design, data collection and analysis, and future work to follow.

**Offered**

*Fall, Spring, and Summer, 1 credit, Letter graded (A, A-, B+, etc.)*

**MCR 694: Seminars in Clinical Research**

**Offered**

*Fall and Spring, 1 credit, Letter graded (A, A-, B+, etc.)*

**MCR 695: Defining and Developing a Career Path in Clinical and Transnational Research**

Students will read and discuss chapters from the Howard Hughes Medical Institute "Making the Right Moves" online textbook and develop a career plan. Topics include how to set up your lab, networking, conflicting resolution and managing your staff.

*1 credit, S/U grading*

**MCR 696: Presenting Research Results to Peer Audiences**

Students will have reading assignments on designing and giving a great talk as well as how to write a paper suitable for publication in a peer reviewed journal. Students will have an opportunity to practice giving a talk about their research projects. Masters students will present a summary of their thesis project to date. Each student in the Masters in Clinical Research Program will present a final project as part of the Annual Research Symposium help the last day of class.

*1 credit, S/U grading*

**MCR 698: Practicum in Teaching**

The course provides hands-on experience in classroom teaching and mentoring students in the conduct of clinical research. Other activities may include preparation and supervision of class projects, exams, homework assignments, creation of voice over PowerPoint lectures, and participation in interactive Blackboard student discussions. A final report that summarizes the activities completed and provides a self-reflection on the experiences gained during the practicum is required at the conclusion of the course. Participation by advanced graduate student under the supervision of program faculty.

**Prerequisite:** Permission of the supervising faculty. 3 credits, S/U grading May be repeated 2 times FOR credit.

*3 credits, S/U grading*

*May be repeated for credit.*

**MCR 699: Masters Thesis**

Original investigation in clinical research undertaken with the supervision of the student's Thesis Committee. 1-6 Credits, ABCF Grading

*1-6 credits, Letter graded (A, A-, B+, etc.)*

*May be repeated 4 times FOR credit.*