RGME 525. Current Topics in Regenerative Medicine. 2 Units.
Current Topics in Regenerative Medicine, will be an elective course in the newly approved Master's Program in Regenerative Medicine and Entrepreneurship. The objective of this course is for each student to develop a general understanding of concepts and current topics related to Regenerative Medicine, Stem Cell research, entrepreneurship and product development. -To expose students to principles in Cell Biology and Tissue Engineering relevant to the field -To review the current landscape and spectrum of topics which makes up the field of regenerative medicine -To discuss federal regulatory and compliance issues related to clinical research and the development of therapeutics -To explore cellular manufacturing approaches for regenerative medicine products -Discuss ethical and societal issues related to regenerative medicine research and technologies

RGME 535. Foundations in Regenerative Medicine. 3 Units.
Foundations in Regenerative Medicine is a team-taught course using multiple faculty content experts. The objective of this course is for each student to develop a general understanding of the foundations and concepts related to Regenerative Medicine and Stem Cell research. -To expose students to foundational principles in Cell Biology and Tissue Engineering relevant to the field -To review the current landscape and spectrum of topics which makes up the field of regenerative medicine -To explore current and emerging technologies supporting regenerative medicine research -To discuss federal regulatory and compliance issues related to clinical research and the development of therapeutics -To explore cellular manufacturing approaches for regenerative medicine products -Discuss ethical and societal issues related to regenerative medicine research and technologies

RGME 545. Stem Product Biology, Bench to Bedside Development and Therapeutic Translation. 3 Units.
This course is a team-taught course using multiple faculty content experts. The objective of this course is for each student to understand the concept of stem cell biology from procurement to therapeutic development. This course will provide an overview of the regulatory framework, concepts, lab operations, and biologic techniques to support cell and regenerative medicine product manufacturing. To work in this emerging field, students must understand the scientific and regulatory development of biologic therapies as well as operational issues related to manufacturing in the cleanroom space under quality systems. The goals are to: 1) Develop an understanding of the infrastructure and compliance required to manufacture biologics for clinical use of stem cells. 2) Identify and critically analyze key operational issues related to clinical development and use of biologics from expansion to pre-clinical validation and therapeutic use. 3) Perform hands on activities using current techniques. 4) Discuss ethical and societal issues related to regenerative medicine research and technologies.

RGME 547. Gene Therapy and Concepts in Regenerative Medicine. 3 Units.
This course focuses on the principles of gene therapy for disease treatment or drug delivery. Technical aspects associated with the development of the therapeutic approach will be covered along with the concepts related to the legal, ethical, economic, religious, and philosophical consequences of implementing gene-editing technologies for common and rare (often childhood) diseases. The "agora" will define ethical considerations of risk/benefit, informed consent, priority therapy targets, optimal technologies and delivery, costs, FDA regulation, and desired outcomes across disciplines. This course will be available to all students at CWRU, with consent of instructor. Students must have a foundational understanding in cell biology, exposure to regenerative medicine and genetics. Recommended Preparation: RGME 535 or RGME 525.

RGME 560. Regenerative Medicine Independent Study, Research Project. 3 Units.
The RGME 560 Independent Study-Research Project allows students to explore a topic of interest under the close supervision of a RGME program director and mentor. The course may include directed readings, applied work, assisting a faculty member with a research project, carrying out an independent research project, or other activities deemed appropriate. Regardless of the activities, the work must culminate in a formal paper. The specific course requirements are described in the Independent Studies Proposal form to be completed by the student, project mentor and program director prior to enrollment in the course. Prereq: RGME 535 and RGME 545.

RGME 565. Regenerative Medicine Independent Study, Internship. 3 Units.
The RGME 565 Independent Study-Industry Internship provides students with the opportunity to gain practical experience within an industry environment. Course objectives are: -Acquire knowledge of the industry sector in which the internship is completed. -Translate knowledge and skills learned in the classroom into a work environment. -Explore additional career options available with the designated industry sector. -Identify areas for future knowledge and skill development. Prereq: RGME 535 and RGME 545.