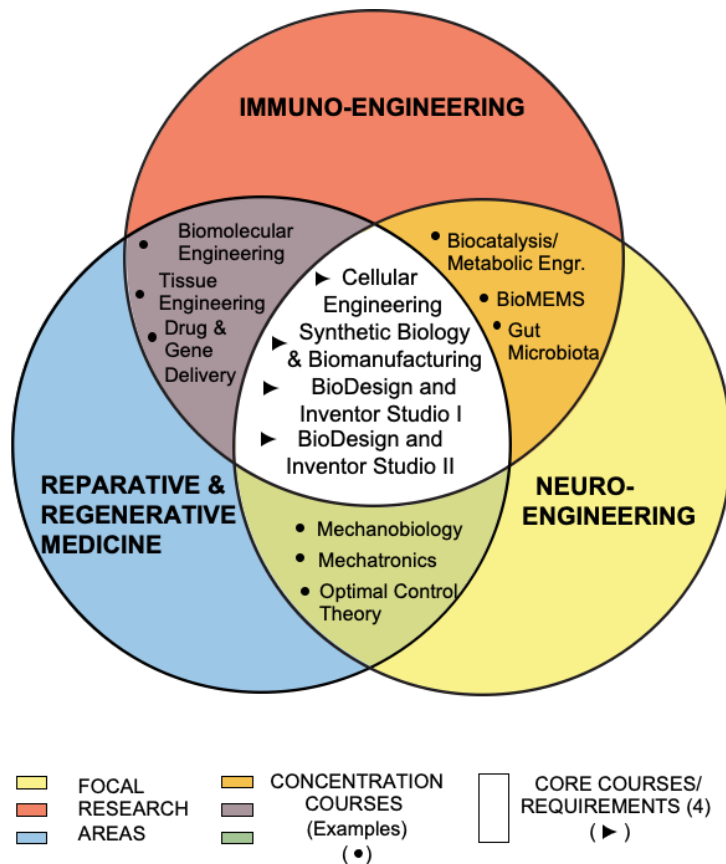


Rensselaer Polytechnic Institute (RPI) Icahn School of Medicine at Mount Sinai (ISMMS) Joint PhD Program in Health Sciences Engineering



Key Features:

- A PhD Program to train students in engineering medicine through educational courses and research training embedded in engineering (process and product design; open-ended problem solving) and medicine (case studies, grand rounds) with a focus on Reparative/Regenerative Medicine, Immuno- and Neuro-engineering.
- Unique first year involves **immersion in 'engineering'** at RPI followed by training in **'entrepreneurship and commercialization'** at CEPM and **'clinical shadowing'** at Sinai.
- Immersions will create a 'translational mindset' at the onset of the program and produce a new breed of PhDs capable of inventing new technologies to address unmet clinical needs.

- Translational mindset will be reinforced by industrial/ hands-on internship in entrepreneurship (Second year), grand rounds and health hackathon (throughout), and a PhD committee with expertise in engineering, biomedical sciences, clinical medicine and entrepreneurship.
- Four modular core courses (in white intersecting area) on fundamental approaches in precision medicine with emphasis on engineering design, translation and commercialization. Additional core experiences through lab rotations, grand rounds, clinical showing, seminars, hackathons, industrial internships etc.
- BioDesign and Inventor Studio courses involve identifying unmet health needs in CEPM areas of interest, using engineering design approaches to invent technologies to address the needs, and devising strategies to implement those solutions in a target market.
- Three concentration (elective) courses from a broad set of courses to be developed by CEPM faculty and/or existing courses available at RPI or Sinai (schematic contains representative examples).

Year-by-year timeline:

Year/Semester	Support	Activities
O (Admission)	CEPM Travel support	<ul style="list-style-type: none"> Prospective PhD students will apply to a joint RPI- ISMMS PhD in Engineering Medicine. Applications will be reviewed by a joint committee composed of CEPM faculty. Admitted PhD students will be invited for in person interviews (2 days) at CEPM, and based on theirs and faculty's interest will be assigned a primary advisor and offered full financial support (subjected to satisfactory progress towards PhD).
I (Fall/Spring) @ RPI	Fellowship or TA	<ul style="list-style-type: none"> Immersion in engineering in form of 12 credit hours of course work that are unique to RPI or core. Laboratory rotation (3 mo./lab) to select a PhD co-advisor who will provide expertise in engineering or biomedical science.
I (Summer) @ CEPM, ISMMS	Fellowship or RA	<ul style="list-style-type: none"> Immersion in innovation, entrepreneurship and commercialization via Biodesign and Inventor Studio courses I and II (6 credit hours). Clinical rotation and shadowing related to thematic emphasis of PhD (Neuro, Cardio, Ortho, Immunology etc.). Development of PhD proposal and initiation of formal PhD research project with primary research advisor. Formalization of multidisciplinary PhD committee (Engineering, Biomedical Science, Medicine, Entrepreneur).
II (Fall/Spring) @ CEPM, ISMMS	RA	<ul style="list-style-type: none"> Immersion in medicine in form of up to 6 credit hours of course work that are unique to ISMMS or core courses. Advancement to PhD (qualifier) based on PhD proposal and a qualifying exam.
II (Summer) @ CEPM	RA	<ul style="list-style-type: none"> PhD research Entrepreneurship internship (8 hrs./wk.) in CEPM Development labs/J-labs/NY Biotech
III @ CEPM (Fall/Spring/Summer)	RA	<ul style="list-style-type: none"> PhD Research PhD candidacy/proposal defense
IV-V @ CEPM (Fall/Spring/Summer)	RA	<ul style="list-style-type: none"> PhD Research PhD Defense and Graduation