

**201 Greengineering Design Lab**  
**Newton’s Innovation Lab**  
 Newton Public Schools

**COURSE SYLLABUS – 201 GNRG Design Innovation Lab**

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Phone: 617-559-6261  
 Room: 148  
 Term: Full Year or One Semester

Extra Help: Mondays – 2:25-3:20 and Thursdays – 2:40-3:20

**Course Description:**

The 201 GNRG Design Lab is an innovation lab that offers our students the skills to grapple with problems that do not yet exist.

Students in the 201 GNRG Design Lab experience an “intense integrated environment characterized by ambiguous, complex, ill-defined and unstructured problems to be addressed by rigorous brain/hand storming, extreme collaboration, prototyping, iterating, design, and experimental methodologies.”

The 201 GNRG Design Lab class operates around a semester based theme, (themes include: the classroom, myth, fun and games, playground power, stuff, society, risk, etc), during which students participate in four, month-long design challenges. During the first month of every semester, students learn essential design thinking skills utilizing IDEO and Stanford University’s Design Thinking Tool kits. Design challenges in each theme are based on an iterative model, where learners undergo a series of graduated problems under the close supervision of a faculty coach who constantly assesses and offers feedback to the students.

201 GNRG LAB Semester-at-a-glance (example)

	<b>Fall Semester</b>	<b>Smarter School</b>	<b>How might we create classroom elements that would create inspired engagement for students?</b>	
<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Jan.</u>
-Intro to GNRG <u>Lab Bootcamp</u> -Safety -Engineering/ <u>Design Process</u> (EDP) -Team work	<b><u>Gather/Discover</u></b> Design Challenge #1 “School Desk for the Future”  -what new classroom tools	<b><u>Analyze</u></b> Design Challenge #2 “Architecture of Learning”  -designing the	<b><u>Prototype</u></b> Design Challenge #3 “Geography of a classroom”  -mapping the functions of physical	<b><u>Evaluate</u></b> Design Challenge #4 “Universe in a box or there’s an app for that” -learning is a multi-sensory process echoed through guided

<u>-Design Thinking Protocols</u> <u>-Lab/Shop Safety</u> <u>-Rapid Cycle and Deep Dive Design Challenges</u> <u>-Intro to Semester theme</u>	can we create? How will these tools affect the process of learning?	process of cognition	classroom space	engagement with cutting edge tech tools
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There is an online component to this class. Students are required to spend time posting to the discussion board on the class website (<http://www.greengineers.wikispaces.com>). Students will also find critical information for class posted there as well. Students are expected to visit the website daily.

**Course Objectives:** Through the 201 GNRG Design Lab, the students will develop the following skills:

- radical collaboration
- immersive project-based environment
- mission-critical classroom
- cutting edge skills and technologies
- work with ill structured problems in completely integrated, action oriented environment

Students also enhance classical skills

- research
- oral communication and presentation
- quantitative reasoning and analysis
- audio, visual and digital art
- scientific reasoning and analysis

The 201 GNRG Design Lab offers students an opportunity to focus on five process areas - **1.solution-finding/framing, 2.multidisciplinary team building, 3.ideation/brain and hand storming, 4.prototyping/testing and iterative design, 5.narrative/counter-narrative development.** Students will engage the course as design thinkers tackling local and global issues and then mapping/creating solutions.

**Grading Policy:**

- - 0 = No evidence of learning
  - 1 = Can do most of the simple stuff with help
  - 2 = Can do all of the simple stuff
  - 3 = Can do all of the simple stuff and all of the complex stuff
  - 4 = Can go beyond what was directly taught in class

**Attendance:**

- This course is designed as a hands-on design workshop; as a result, students are expected to attend and participate in all classes. Any absence will negatively affect your grade. Students should contact instructor as soon as possible with any attendance issues.

**Grading Dissemination:**

- 30% = Daily participation
- 15% = Weekly 3-2-1 (posted online)
- 15% = monthly “Stand and Delivers” present class related articles and videos
- 20% = monthly “Design Lab” blog (posted twice a month online)
- 20% = Monthly Team Reports (SWOT)

**Late Work Policy:**

- Students must contact instructor as early as possible (via email or voicemail) if course work will be late. Late work must be turned in at the next class meeting.