DRONZ STARTUP TEAM PROJECT (482 points): Much of the course will be devoted to two, integrated, semester-long projects: Business Model Development and 3D Product Prototyping. Teams will be formed during the second week of class and will be comprised of 4-6 members. Class members not present during team assignment will be randomly assigned. If enough class members are not present during team assignment (see Assignment Calendar for date), they will be assigned to the same team.

Business Model Development

Much of this project will be devoted to the team's development of a temporary, for-profit startup which would use unmanned aerial systems (drone) to provide services or products. The focus of this project will be on developing a scalable, high-growth business model for a drone-related company. Your team will collect data on potential market demand through user discovery/development/validation and lean data analytics.

You will also be applying the Business Model Canvas development tool through the online web app, Strategyzer, in order to generate a viable, scalable business model for your startup. Once you have developed sufficient customer data collection and research on your startup's business model in the Search Iteration cycle, you will be pitching new venture "investors" to convince them to help finance your startup for the Execution cycle.

Your team will be evaluated on use of Strategyzer in the generation of two business model generation presentations with supporting documents (50 points each) and a healthcare investor pitch based on the investor judge ratings of the attractiveness of your startup model and prototype for investment (50 points).

3D Product Prototyping

The College of Business & Economics has acquired four Makerbot Replicator 2 3D printers. In addition, the RU IT division also has purchased one as a backup (located in Print Services office on corner of First & Grove Avenues, appointment required). The COBE printers will be made available early in the semester in the Student Club room (BE 129) on the first floor and printing will be based on a first-come, first-served policy. These printers, combined with the free SketchUp Make 2015 3D Design and online Makerbot Desktop 3D Printer software, allow you to design, modify, and build physical prototypes. Product prototyping is common in both large and small businesses and 3D printing is now available in low-cost form for product-based startups. To learn more about 3D Printing and Prototyping, visit http://bit.ly/1GfRGOb

Your team will be provided hardware kits (without frame) by the instructor for the Flexbot Quadcopter (v1.5), a smartphone controlled nano-drone. No programming, mechanical, or electronics knowledge is required, but assembly and user instructions must be closely followed to create an operational prototype. The free Flexbot control app can be downloaded from Apple App store (iOS 6.1+) and from Google Play store (Android 4.4+). Communication between phone and drone is via Bluetooth 4.0+ with range of about 50 feet. We will adhere to the Federal Aviation Administration's rules when flying. The Flexbot is best used on a field with short, mowed grass, no obstacles / other people, and little wind for better control, safety, loss avoidance, and to limit crashes resulting in broken parts which must be reprinted. Your Flexbot is not protected against moisture or water. The focus of the project will be on business model development and prototyping activities, not on flight control skills.

Think of the Flexbot as your small-scale prototype platform. Your team will use Flexbot's Thingiverse 3D design files to initiate the drone prototype development by 3D printing the frame (body) to enable complete assembly of the quadcopter. Your team will enhance the design, modification, and market-testing of a drone-related product using these technologies. The prototype design, prototype improvement, and market demand testing will be evaluated. The larger the object to be 3D-printed, the longer it takes. Total print time for all your DRONZ prototype components will be 20+ hours during the semester, so your team will need to plan accordingly.   COBE building not open on certain days.

Your team will be evaluated on use of Sketchup Make 2015 design software in the generation of a digital , 3D design (50 points), two 3D-printed prototypes in showcase presentations (25 points each); and a third showcase presentation based on potential customer feedback to third iteration of drone product prototype (50 points).

Three peer evaluations will be conducted during the DRONZ Startup Team project: The first two will provide constructive feedback to other team members during the project and the team member producing the evaluations will be scored on the quality of their feedback (16 points each). The third peer evaluation will evaluate each team member based on their contribution to the overall project (50 points).

A final DRONZ Startup Report will be developed which will integrate and describe both the business model development and 3D prototype development parts of the project (100 points).