Background: Data Science and the Healthcare Ecosystem (Background)

- Week 1 Module 1: Course Overview, Data Science Concepts
- Week 2 Module 2: Healthcare Part 1: Ecosystem, Data
- Week 3 Module 3: Healthcare Part 2: Metadata, Ontologies
- Week 4 Module 4: Health Web Science: The role of the Web in healthcare and 21st Century Medicine

Science Applications in Drug Discovery

Q1: How can data science help researchers find new drugs and reuse old ones?

- Week 5 Module 5: Q1-1 The Drug Discovery Process: History, epochs and paradigms of drug discovery
- Week 6 Module 6: Q1-2 Bioinformatics: genomics, proteomics, the Central Dogma, the Human Genome Project and its offspring
- Week 7 Module 7: Q1-3 Bioinformatics: medicine as a molecular information science
- Week 8 Module 8: Q1-4 Cheminformatics: molecular graphs and databases, the vastness of chemical space, the search for new drugs, a high dimensionality challenge

Data Science Applications in Medicine

How can data science help doctors and clinicians treat patients better?

- Week 9 Module 9: Q2-1 Electronic Medical Records, Clinical Trials, Precision Medicine
- Week 10 Module 10: Q2-2 Apps for Doctors, Nurses, Clinicians
- Week 11 Module 11: Q2-3 Clinician Perspective (Grant Cumming), Government, Public Health

Data Science Applications in Personal Health

And how can data science help us all lead healthier lives?

- Week 12 Module 12: Q3-1 Patient Focused. (Quantified Self, Electronic Diaries, Your Medical Mind)
- Week 13 Module 13: Q3-2 Crowdsourcing, online communities, ePatients, patient advocates
- Week 14 Module 14: Q3-3 Patient Perspective (Grant Cumming) Personal Genomics

Virtual Poster Session – Student Showcase and Course Wrap-up

- Week 15 Module 15: Virtual Poster Session (presentation of student projects)
How can Data Science help researchers in drug discovery?

How can Data Science help doctors and other providers?

How can Data Science help us all lead healthier lives?