

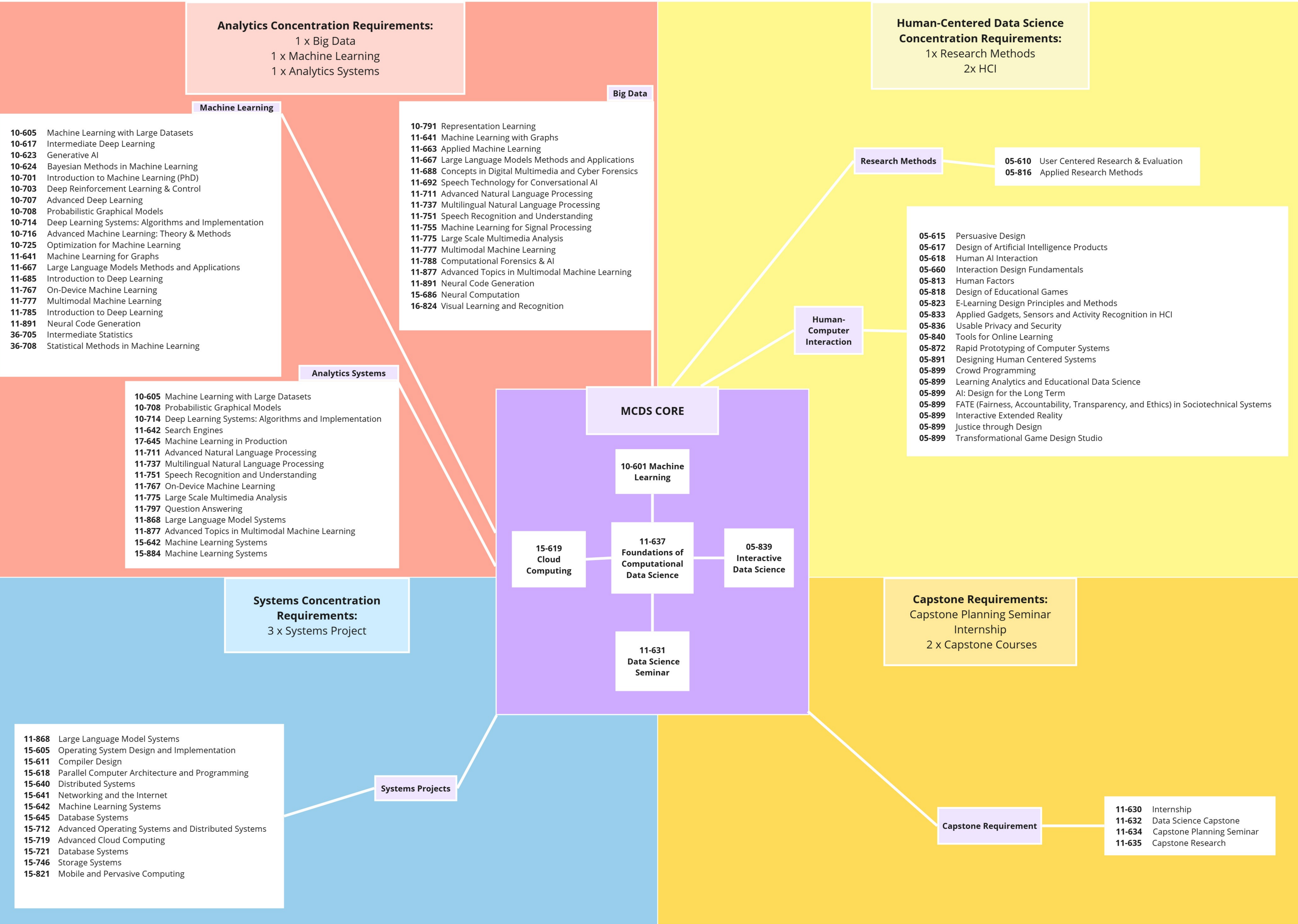


2026-2027 Core & Concentrations

[Stellic Degree Planner](#)

[Schedule of Classes](#)

MCDS Graduation Requirements:
MCDS Core Courses
Capstone Requirement
One Set of Concentration Courses
One Elective (any 600+ level SCS course)



Analytics Concentration Requirements:
1 x Big Data
1 x Machine Learning
1 x Analytics Systems

Human-Centered Data Science Concentration Requirements:
1x Research Methods
2x HCI

Systems Concentration Requirements:
3 x Systems Project

Capstone Requirements:
Capstone Planning Seminar
Internship
2 x Capstone Courses

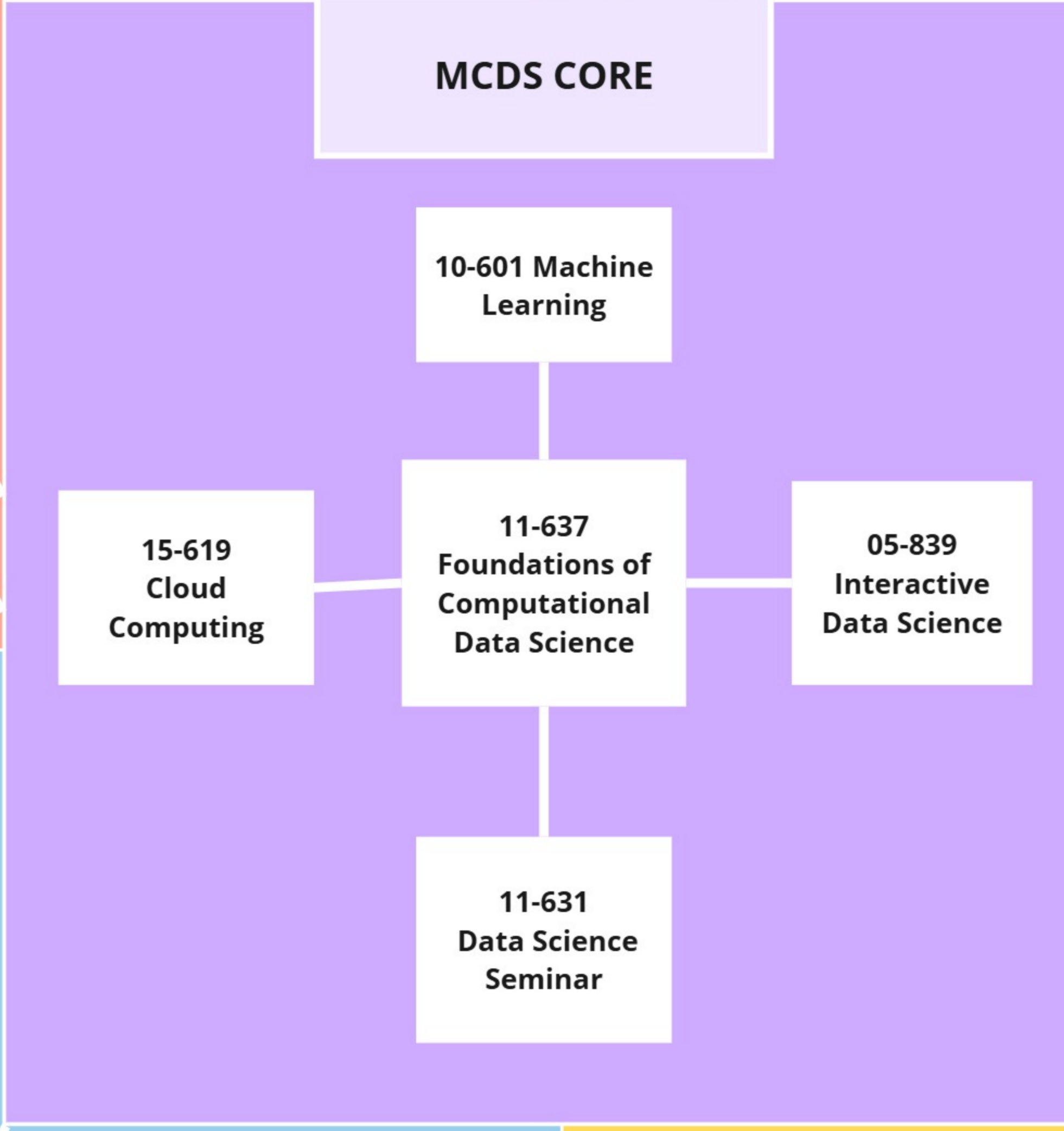
- Machine Learning**
- 10-605 Machine Learning with Large Datasets
 - 10-617 Intermediate Deep Learning
 - 10-623 Generative AI
 - 10-624 Bayesian Methods in Machine Learning
 - 10-701 Introduction to Machine Learning (PhD)
 - 10-703 Deep Reinforcement Learning & Control
 - 10-707 Advanced Deep Learning
 - 10-708 Probabilistic Graphical Models
 - 10-714 Deep Learning Systems: Algorithms and Implementation
 - 10-716 Advanced Machine Learning: Theory & Methods
 - 10-725 Optimization for Machine Learning
 - 11-641 Machine Learning for Graphs
 - 11-667 Large Language Models Methods and Applications
 - 11-685 Introduction to Deep Learning
 - 11-767 On-Device Machine Learning
 - 11-777 Multimodal Machine Learning
 - 11-785 Introduction to Deep Learning
 - 11-891 Neural Code Generation
 - 36-705 Intermediate Statistics
 - 36-708 Statistical Methods in Machine Learning

- Big Data**
- 10-791 Representation Learning
 - 11-641 Machine Learning with Graphs
 - 11-663 Applied Machine Learning
 - 11-667 Large Language Models Methods and Applications
 - 11-688 Concepts in Digital Multimedia and Cyber Forensics
 - 11-692 Speech Technology for Conversational AI
 - 11-711 Advanced Natural Language Processing
 - 11-737 Multilingual Natural Language Processing
 - 11-751 Speech Recognition and Understanding
 - 11-755 Machine Learning for Signal Processing
 - 11-775 Large Scale Multimedia Analysis
 - 11-777 Multimodal Machine Learning
 - 11-788 Computational Forensics & AI
 - 11-877 Advanced Topics in Multimodal Machine Learning
 - 11-891 Neural Code Generation
 - 15-686 Neural Computation
 - 16-824 Visual Learning and Recognition

- Analytics Systems**
- 10-605 Machine Learning with Large Datasets
 - 10-708 Probabilistic Graphical Models
 - 10-714 Deep Learning Systems: Algorithms and Implementation
 - 11-642 Search Engines
 - 17-645 Machine Learning in Production
 - 11-711 Advanced Natural Language Processing
 - 11-737 Multilingual Natural Language Processing
 - 11-751 Speech Recognition and Understanding
 - 11-767 On-Device Machine Learning
 - 11-775 Large Scale Multimedia Analysis
 - 11-797 Question Answering
 - 11-868 Large Language Model Systems
 - 11-877 Advanced Topics in Multimodal Machine Learning
 - 15-642 Machine Learning Systems
 - 15-884 Machine Learning Systems

- Research Methods**
- 05-610 User Centered Research & Evaluation
 - 05-816 Applied Research Methods

- Human-Computer Interaction**
- 05-615 Persuasive Design
 - 05-617 Design of Artificial Intelligence Products
 - 05-618 Human AI Interaction
 - 05-660 Interaction Design Fundamentals
 - 05-813 Human Factors
 - 05-818 Design of Educational Games
 - 05-823 E-Learning Design Principles and Methods
 - 05-833 Applied Gadgets, Sensors and Activity Recognition in HCI
 - 05-836 Usable Privacy and Security
 - 05-840 Tools for Online Learning
 - 05-872 Rapid Prototyping of Computer Systems
 - 05-891 Designing Human Centered Systems
 - 05-899 Crowd Programming
 - 05-899 Learning Analytics and Educational Data Science
 - 05-899 AI: Design for the Long Term
 - 05-899 FATE (Fairness, Accountability, Transparency, and Ethics) in Sociotechnical Systems
 - 05-899 Interactive Extended Reality
 - 05-899 Justice through Design
 - 05-899 Transformational Game Design Studio



- Systems Projects**
- 11-868 Large Language Model Systems
 - 15-605 Operating System Design and Implementation
 - 15-611 Compiler Design
 - 15-618 Parallel Computer Architecture and Programming
 - 15-640 Distributed Systems
 - 15-641 Networking and the Internet
 - 15-642 Machine Learning Systems
 - 15-645 Database Systems
 - 15-712 Advanced Operating Systems and Distributed Systems
 - 15-719 Advanced Cloud Computing
 - 15-721 Database Systems
 - 15-746 Storage Systems
 - 15-821 Mobile and Pervasive Computing

- Capstone Requirement**
- 11-630 Internship
 - 11-632 Data Science Capstone
 - 11-634 Capstone Planning Seminar
 - 11-635 Capstone Research