Section	Section Title	Learning Objectives	Date
Section 1/2	Introduction and Python Basics Digital Signatures	**Sec 1:** Python basics: lists, dicts, tuples, functions, loops, if statements, and modules, classes, inheritance, catching errors w/ Try & Except, Where's the blockchain? **Sec 2:** asymmetric encryption, digital signatures, signatures for crypto, test-driven development, installing modules w/ pip, sign and verify **Assignment:** Sign and Verify **Quiz 1:** Digital Signatures	March 13 – 19
Section 3/4	Block Chain Transactions	**Sec 3:** Hash function, cryptographic hashing, computing hash functions w/ python, block chains, blockchains for general data **Assignment**: Blockchain for general data **Quiz 2:** Cryptographic Hashing **Sec 4:** Transactions, multiple output addresses, multi-signature transactions, transaction classes **Assignment 1:** Transaction Class **Quiz 3:** Transactions	March 20 – 26
Section 5/6	Blockchain-based transaction ledger Mining and Proof-of-Work	**Sec 5:** Securing a public transactions ledger, review of previous work, save and restore the, the TxBlock class **Assignment 1:** Save and Restore w/ Pickle **Assignment 2:** TxBlock Class **Sec 6:** Decentralization, the dark side of decentralization, proof-of-work, nonces, mining rewards, nonce requirement, other python tips and tricks **Assignment 1:** Mining rewards **Assignment 2:** Nonce requirement **Quiz 4:** Proof-of-Work Quiz	March 27 – April 2
Section 7/8	Communicating with Peers Multi-threading	**Sec 7:** Dragons, internet basics, client and server, building a server, building a client, non-blocking server, client-server code along, pickling data for communication, finishing up client server, miner and wallet, building a socket communication utility, placing a new block, **Assignment:** Build a Miner **Sec 8:** Basic threading, coding and best practices, save and restore blocks and transactions	April 3 – 9

		Assignment 1: Test Miner Using Threads **Assignment 2:** Wallet Client and Server **Assignment 3:** Saving and Restoring Keys	
Section 9	Additional Security Concerns	**Sec 9:** Potpourri, approaches to replay attacks, hardness and emission rate, <u>crypto coin economics:</u> supply-side and demand-side, **Assignment 1:** Load and Save States **Assignment 2:** Limit Block Size **Assignment 3:** Checking Account Balances **Assignment 4:** Blockchain Branching **Assignment 5:** Replay Attacks **Assignment 6:** Multiple Miners **Quiz 5:** Hardness Quiz **Assignment 1: Final Code Base**	April 10 - 16
Section 10	**Final Exam**	Explain the below consensus algorithms in at least a couple of paragraphs. If there are some famous blockchains/cryptocurrencies that use these methods, please mention them (e.g. bitcoin uses proof of work). There might be some degrees of similarities between them, if you could, mention them, too. proof of work, proof of stacking, Delegated Proof of Stake, proof of transfer, Proof of Elapsed Time (PoET), Proof of Burn, Proof of History (PoH), Proof of Capacity, Proof of Identity, Proof of Authority, Proof of Activity	April 17 - 23