21Lectures

Bitcoin Masterclass
Intro

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whoami
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Background: Computer science, Neuroscience

Attended the inaugural 2018 course

Working in the space since mid-2019

Now: 21 Analytics, co-founded in 2020, 21 Lectures, co-founded in 2023
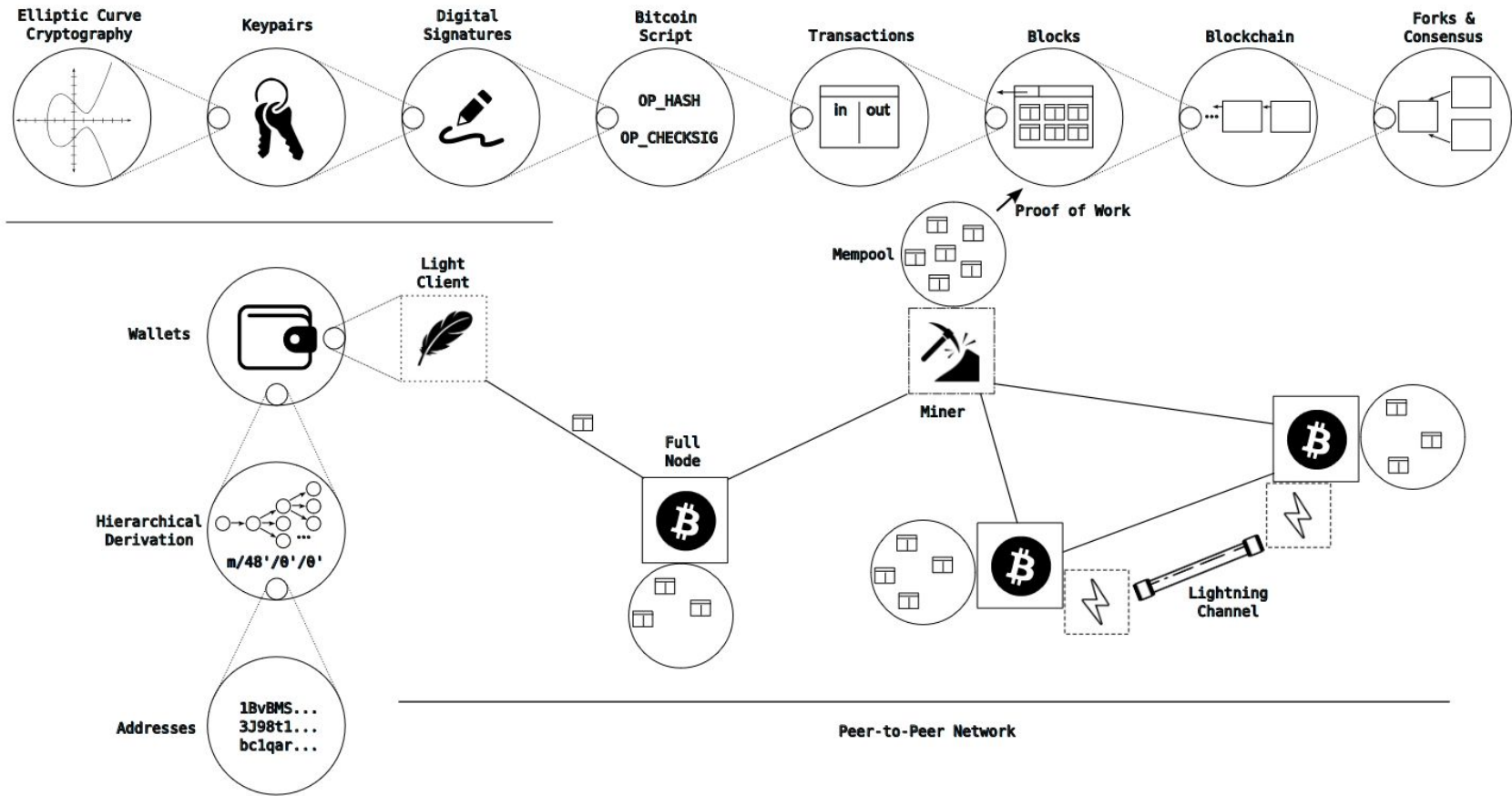
Open-source: github.com/dspicher

James Chiang

- https://teachbitcoin.io/
- Lots of slides
- The "bx" exercises set

Buy him a beer!

Course Goals

- Get a detailed understanding of how Bitcoin works on a technical level
  - Ready for 21 Lectures Masterclass
- Increase the scope for self-learning
- Meet like-minded people, discuss, network

Technical Concepts in Bitcoin
21 Lectures

A two-day whirlwind tour across Bitcoin's core concepts

Day 1 morning

- Elliptic curves
- Digital signatures
- Setup Works

Day 1 afternoon

Transactions:

- Scripting, P2SH
- Timelocks, Timestamping
- SegWit
- Exercise: Spend a testnet P2PKH

Day 2 morning

- HD Wallets
- Blocks, mining
- Confirmation model
- Exercise: HD Wallets

Day 2 afternoon

- Forks & Reorgs
- Taproot
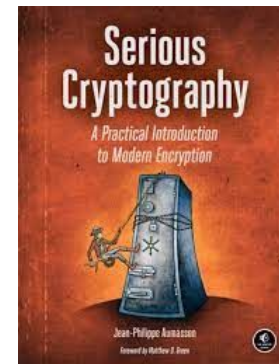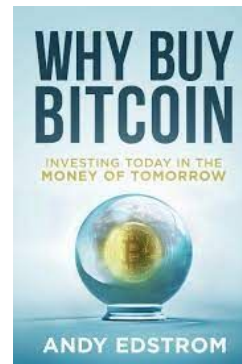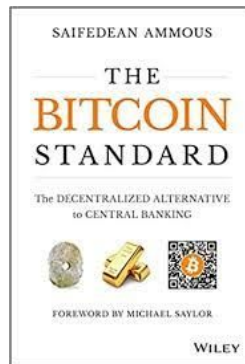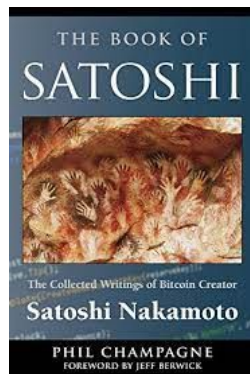- SPV clients
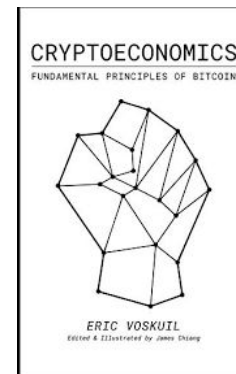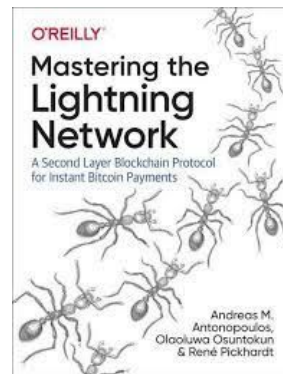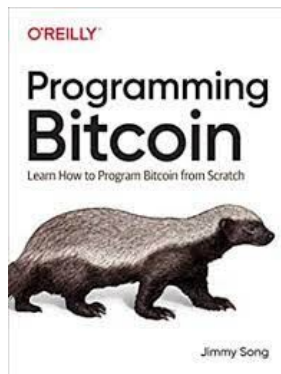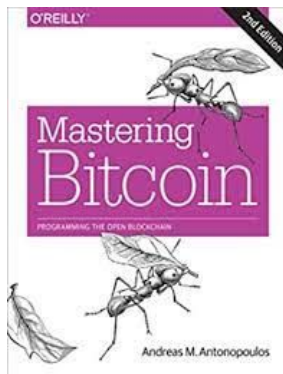- RSMCs / HTLCs
- Exercises Contd.

Missing:
- P2P

Exercises: 1-1.5 hrs

A day in the life of a Masterclass student

- Start 09:00
- ☕
- Lunch (included 🎉) 12:00
- Start Afternoon 13:15
- ☕
- End 17:00

Resources

Other resources

- [BIPs](): the closest thing to a specification for Bitcoin
- [Optech Newsletter]()
- [Bitcoin from the command line]()
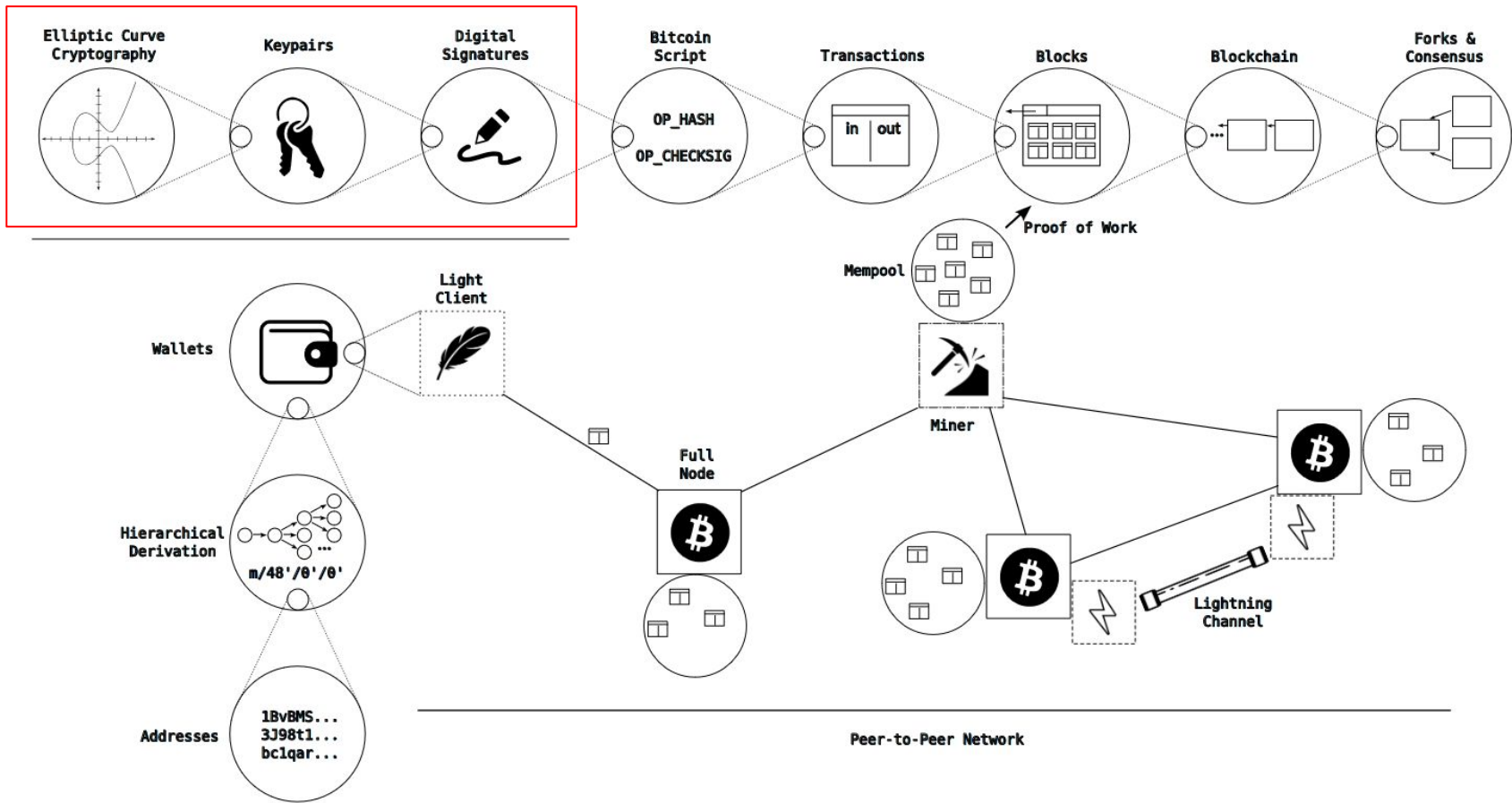- [Libbitcoin source code]()

Exercises

Two prepared exercises

- exercises/2024_exercises
  - Spend P2PKH output prepared for you
  - Parent private key exposure for non-hardened BIP32 derivation

There is a full set of much more comprehensive exercises:

- With "bx", the libbitcoin explorer command line tool
  - More from the user's perspective
- Explore!

Finally …

this course is for you!

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