

UNDERSTANDING WEB3

SECTION 5 REVIEW: SMART CONTRACTS, DEFI, AND GOVERNANCE

A Prison Professors Self-Directed Course

Estimated time: 75–105 minutes

Educational Boundary:

This review provides general education about technology, financial systems, governance, and risk. It does not provide individualized financial, investment, legal, tax, programming, organizational, or voting advice.

REVIEW PURPOSE

You have completed Lessons 16 through 18 of Understanding Web3. This review gives you a place to connect smart-contract logic, decentralized-finance systems, and blockchain governance. Each topic introduces its own risks. When the topics operate together, one weakness may affect several parts of the system.

I encourage you to use the review as a systems-analysis exercise. Begin with the rules the code can execute. Then trace the assets, data, people, permissions, and decision procedures connected with those rules. A disciplined review asks what a system can do, what it depends on, who can change it, who may benefit, and who may absorb a loss.

THE REVIEW COVERS:

- » How smart contracts use inputs, rules, stored state, and outputs, and how a decentralized application connects several technical and human layers.
- » How oracles, audits, administrative controls, interfaces, and vulnerabilities affect automated execution.
- » How decentralized exchanges, liquidity pools, lending, collateral, liquidation, and yield create connected benefits and risks.
- » How governance tokens, proposals, voting power, delegation, treasuries, timelocks, participation, and accountability influence collective decisions.
- » How to evaluate a system that combines code, financial exposure, and governance authority.

HOW TO COMPLETE THE REVIEW

- » Write your responses on separate paper or in an approved institutional messaging system.
- » Number each response so that another person can follow your work.
- » Complete the knowledge questions and vocabulary matching before reading the scenario.
- » Explain your reasoning in your own words when a question asks why or asks you to evaluate a process.
- » Use the printed lessons when you need to check a definition or reconsider an answer. You do not need the internet.
- » Do not include passwords, private keys, seed phrases, authentication codes, account numbers, real wallet addresses, or other sensitive information.

The learner-facing review does not include answers. Correct responses, brief rationales, and sample responses will appear in the consolidated appendix after all lessons are completed. Attempt the work before consulting that appendix.

PART 1: KNOWLEDGE QUESTIONS

MULTIPLE CHOICE

1. Which statement best describes a smart contract?
 - a. A person who negotiates blockchain agreements for a community
 - b. Code deployed on a blockchain that stores data and performs defined functions when called
 - c. A guarantee that every programmed transaction is lawful and fair
 - d. A private database that only its original programmer can inspect
2. Which description offers the most complete view of a decentralized application?
 - a. Only the website or screen that a user sees
 - b. Only the smart contract recorded on a blockchain
 - c. A combination that may include an interface, smart contracts, a network, wallets, outside data, and human controls
 - d. Any financial service that uses the word decentralized
3. A lending contract relies on an oracle for the price of collateral. What risk follows from that design?



- a. The blockchain can independently confirm every outside price without any data source.
 - b. Incorrect, delayed, or manipulated oracle data may trigger an incorrect financial result.
 - c. An oracle prevents every coding defect in the lending contract.
 - d. The use of an oracle guarantees that collateral cannot lose value.
4. What role does a liquidity pool commonly serve on a decentralized exchange?
- a. It supplies tokens that a smart contract may use to support exchanges.
 - b. It guarantees a fixed market price for every token.
 - c. It gives a central help desk the power to reverse every exchange.
 - d. It proves that every token in the pool has a lawful purpose.
5. A borrower's collateral falls below a protocol's required threshold. Which result may follow?
- a. The protocol may make the position eligible for liquidation under its rules.
 - b. The borrower automatically receives more collateral at no cost.
 - c. The network must cancel the original borrowing transaction.
 - d. The advertised yield becomes guaranteed.
6. Before accepting a claim that a protocol offers high yield, which question is most useful?
- a. Does the website use professional graphics?
 - b. How many times does the community use the word opportunity?
 - c. What produces the return, what conditions support it, and what paths could lead to loss?
 - d. Can the protocol promise that market prices will rise?
7. Which statement best describes delegation in blockchain governance?
- a. It permanently transfers ownership of every token to the delegate.
 - b. It assigns voting power to a representative under the system's rules and may improve participation while concentrating influence.
 - c. It removes the need to examine a representative's incentives or conflicts.
 - d. It guarantees that every participant has equal influence.

TRUE OR FALSE

- » A prior code audit guarantees that a decentralized application, its oracle, its interface, and every later upgrade are safe.



- » A token-weighted vote may follow published rules while a small number of addresses still hold enough voting power to control the outcome.

SHORT EXPLANATION

- » A proposal describes a protocol as “audited,” “community controlled,” and able to produce an 18 percent annual yield. In five to seven sentences, explain what those phrases may indicate, what they do not establish, and which evidence you would examine before reaching a conclusion.

PART 2: VOCABULARY MATCHING

Match each term with the definition that best fits it. Write the letter of the term beside the correct numbered definition. Use each letter once.

TERMS

- a. Smart contract
- b. Decentralized application
- c. Oracle
- d. Audit
- e. Vulnerability
- f. Decentralized finance
- g. Decentralized exchange
- h. Liquidity pool
- i. Collateral
- j. Liquidation
- k. Yield
- l. Decentralized autonomous organization
- m. Governance token
- n. Delegation
- o. Treasury

DEFINITIONS

- 1. Resources controlled for a community or organization and used according to its approved rules.
- 2. A service or system that supplies a blockchain application with information from outside the blockchain.

3. Tokens placed in a smart contract so that a protocol can support exchanges, loans, or other functions.
4. A return associated with providing, lending, staking, or otherwise committing an asset; it may come from several sources and is not guaranteed profit.
5. A community or organization that uses blockchain-based rules, smart contracts, and collective decision procedures to coordinate selected activities or resources.
6. A program deployed at an address on a blockchain that stores data and performs defined functions when called.
7. A structured technical review intended to identify defects and security weaknesses within a stated scope.
8. An asset pledged to support an obligation and exposed to being taken or sold if required conditions are not maintained.
9. A blockchain-based protocol that allows token exchanges through smart contracts rather than relying only on a conventional exchange's internal ledger.
10. The assignment of voting power to another person or account that may vote as a representative, generally without transferring ownership of the underlying token.
11. A weakness in code, design, configuration, data, or operations that could cause failure or allow misuse.
12. A broad term for blockchain-based services that use smart contracts to perform financial-like functions.
13. A token designed to represent or help calculate voting power in a blockchain-based governance system.
14. An application that uses one or more smart contracts on a decentralized network and usually includes an interface and supporting components.
15. A process that sells or transfers collateral after a borrowing position crosses a defined risk threshold.

PART 3: APPLIED SCENARIO — THE OPENPATH LEARNING POOL

This scenario is fictional. OpenPath, StudyDollar, PathToken, and PathGov do not represent verified products or assets. The figures exist only for analysis. No learner should acquire an asset, create an account, connect a wallet, or conduct a transaction to complete this exercise.

A community launches the OpenPath Learning Pool, a decentralized application that uses several smart contracts. Supporters may supply a fictional token called



StudyDollar. The protocol lends some of those tokens to borrowers and describes a variable yield for suppliers. The stated sources of the yield are interest paid by borrowers and newly distributed PathGov reward tokens.

Borrowers pledge a volatile fictional asset called PathToken as collateral. A price oracle reports the value of that collateral. If the reported value falls below the required threshold, a smart contract may liquidate the position. During periods of heavy withdrawals, suppliers can receive StudyDollar only when enough tokens remain available in the pool.

PathGov tokens also provide voting power. Token holders may submit proposals, delegate votes, change financial settings, approve upgrades, and direct the community treasury. The two largest addresses hold 64 percent of the recorded voting power. Many smaller holders do not vote. One widely followed delegate is paid as a consultant by companies that seek protocol work, but the governance page does not require the delegate to disclose those relationships.

A new proposal combines four changes: replace the price oracle, lower the collateral requirement, transfer 250,000 StudyDollar from the treasury to a company owned by the proposal's author, and reduce the waiting period before execution from 48 hours to two hours. The proposal summary says the package will create "safer data and higher yield." It does not include financial simulations, an independent review of the new oracle, a conflict disclosure, or separate votes on the four changes.

The application's website says that OpenPath is "audited and community controlled." The audit is one year old, covers an earlier version of the lending contract, and excludes the website interface, oracle, current upgrade code, and administrative keys. A three-person emergency committee can pause the protocol, and two committee members can approve an upgrade. The public description does not identify how the committee members were selected or how their decisions are reviewed.

The proposal reaches the minimum quorum. Most participating addresses support it, but the two largest addresses supply nearly all of the favorable voting power. If the proposal executes after two hours, its code will change the oracle, collateral threshold, treasury balance, and future execution delay in one action.

SCENARIO QUESTIONS

1. Identify the principal parts of the decentralized application. Separate the user interface, smart contracts, blockchain network, wallet interactions, oracle, administrative controls, and human governance. Explain how a failure in one part could affect another.

2. Use the input–rule–state–output model to describe the liquidation process. Identify the oracle input, the collateral rule, the stored borrowing position, and the possible output. Explain how incorrect data or faulty code could change the result.
3. Trace the proposed yield to its stated sources. Then identify at least five ways a supplier could receive less than expected or lose access to deposited tokens. Include liquidity, borrower, collateral, oracle, token-incentive, smart-contract, and governance risks where relevant.
4. Evaluate the governance process. Discuss voting concentration, low participation, delegation, the consultant relationship, quorum, the bundled proposal, and the difference between the number of participating addresses and the amount of voting power behind the outcome.
5. Evaluate the claims “audited,” “community controlled,” “safer data,” and “higher yield.” For each claim, identify the evidence supplied, the gaps that remain, and the additional information a careful reviewer would request.
6. Propose a more responsible review and approval process before any change executes. Address separate proposals, conflict disclosure, current technical review, oracle testing and fallback procedures, collateral and liquidity analysis, treasury authorization, voting concentration, a useful waiting period, emergency powers, and public reporting after execution.

COMPLETION CHECK

Before moving to Section 6, ask yourself whether you can:

- » Explain what smart-contract code can automate and which decisions still depend on people, data, interfaces, permissions, and governance.
- » Describe a decentralized application as a set of connected layers rather than as only a website or contract.
- » Trace how a decentralized exchange, liquidity pool, lending system, collateral rule, liquidation process, and proposed yield may work.
- » Identify smart-contract, oracle, liquidity, volatility, collateral, governance, administrative, fraud, and legal risks.
- » Evaluate governance by examining proposals, voting power, delegation, participation, treasuries, execution, conflicts, and accountability.
- » Analyze how one decision can create technical, financial, and governance consequences across a connected system.



If one statement remains difficult, return to the relevant lesson and write a brief explanation in your own words. That review shows that you are monitoring your understanding and strengthening your judgment.

SUBMISSION REMINDER

You may submit your completed review as a dated Profile journal entry, subject to your facility's rules. Include your name or approved Profile identifier, Understanding Web3 — Section 5 Review, and the date you completed the work.

Use one of the established Prison Professors Profile methods:

- » Send it by institutional email to Playbook@PrisonProfessors.org. Suggested subject: Web3 Section 5 Review — [date completed].
- » Send it by postal mail to: Prison Professors, 1205 BMC Drive, Suite 706, Cedar Park, TX 78613.
- » Send it to an approved family member or supporter who can enter it in your Profile at PrisonProfessors.org.

Keep a copy when circumstances permit. Never include passwords, private keys, seed phrases, authentication codes, account numbers, real wallet addresses, or other sensitive credentials in a Profile response.

