Lab Session: Testnet Lending
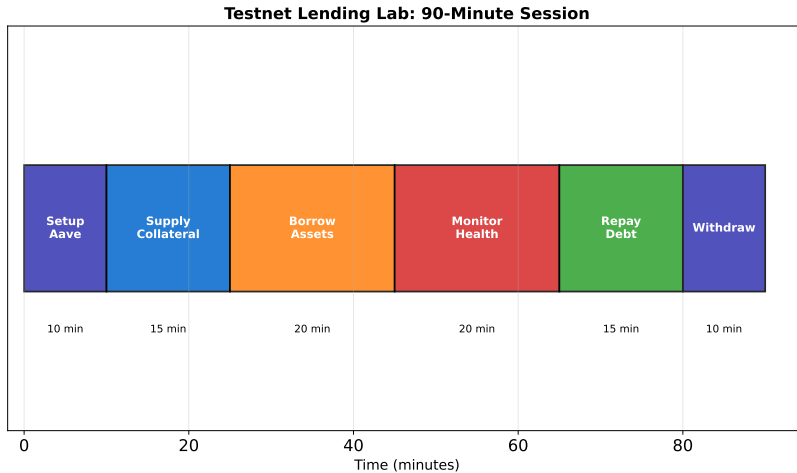## BSc Blockchain, Crypto Economy & NFTs

Course Instructor

Module E: DeFi Ecosystem

Learning Objectives

By the end of this lab session, you will be able to:

- Supply assets to Aave as collateral
- Borrow against collateral on testnet
- Calculate and monitor health factor
- Understand liquidation mechanics
- Repay debt and withdraw collateral

Lab Session Structure

Testnet Lending Lab: 90-Minute Session

Setup Aave	Supply Collateral	Borrow Assets	Monitor Health	Repay Debt	Withdraw
10 min	15 min	20 min	20 min	15 min	10 min

Time (minutes)

Hands-on lending experience with zero financial risk

URL: `https://app.aave.com`

Actions:

1. Connect MetaMask wallet
2. Switch to Sepolia testnet
3. Verify Aave V3 Sepolia interface

Interface Overview:

- Dashboard: Your supply/borrow positions
- Markets: Available assets
- Health Factor: Your risk indicator

Step 2: Supply Collateral
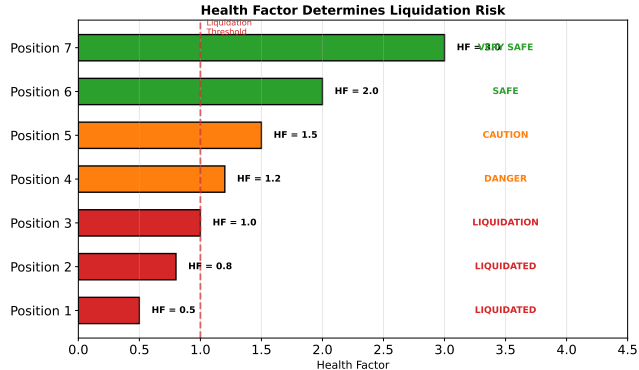
Goal: Deposit ETH to enable borrowing

Process:

1. Click "Supply" on Dashboard
2. Select ETH (0.5 ETH recommended)
3. Enable as collateral
4. Confirm transaction

Record:

- Supply APY received
- aWETH tokens received
- Total collateral value

Health Factor Determines Liquidation Risk

Health factor below 1.0 triggers liquidation

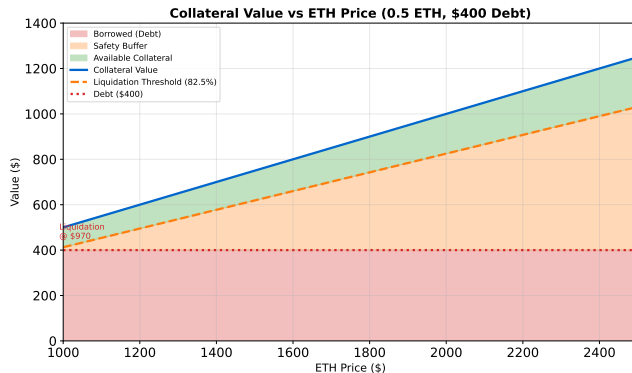**Goal:** Borrow USDC against ETH collateral

Health Factor Formula:

$$HF = \frac{\text{Collateral} \times \text{Liquidation Threshold}}{\text{Borrowed Amount}}$$

Example:

- Collateral: $1,000 (0.5 ETH at $2,000)
- Borrow: $400 USDC
- $HF = \frac{1,000 \times 0.825}{400} = 2.06$

Collateral Value vs ETH Price (0.5 ETH, $400 Debt)

ETH price drop reduces collateral value - HF approaches 1.0

Step 4: Monitor Position

Track Over Time:

- Watch health factor on dashboard
- Observe interest accrual (supply vs borrow)
- Calculate net cost: Borrow APY - Supply APY

Risk Management:

- Add collateral if HF drops
- Repay partial debt to increase HF
- Never let HF approach 1.0

Step 5: Repay and Withdraw

Repay Debt:

1. Click "Repay" on borrowed asset
2. Select full or partial repayment
3. Approve and confirm

Withdraw Collateral:

1. Ensure debt is fully repaid
2. Click "Withdraw" on supplied asset
3. Receive ETH plus earned interest

Submit:

1. **Lab Report (3-4 pages):**
   - Supply and borrow details
   - Health factor calculations
   - Liquidation price calculation
   - Interest accrual analysis

2. **Supporting Evidence:**
   - Dashboard screenshots
   - Transaction hashes

- DeFi lending requires overcollateralization
- Health factor must stay above 1.0
- Interest rates adjust based on utilization
- aTokens represent interest-bearing deposits
- Liquidation protects lenders but penalizes borrowers
- Always test on testnet before using real funds