Lab Session: Testnet Lending

BSc Blockchain, Crypto Economy & NFTs

Course Instructor

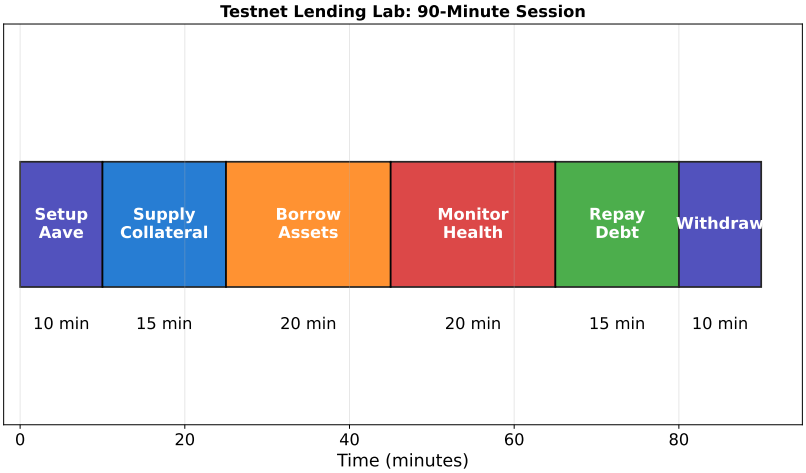
Module E: DeFi Ecosystem

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



Hands-on lending experience with zero financial risk

Step 1: Access Aave Testnet

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

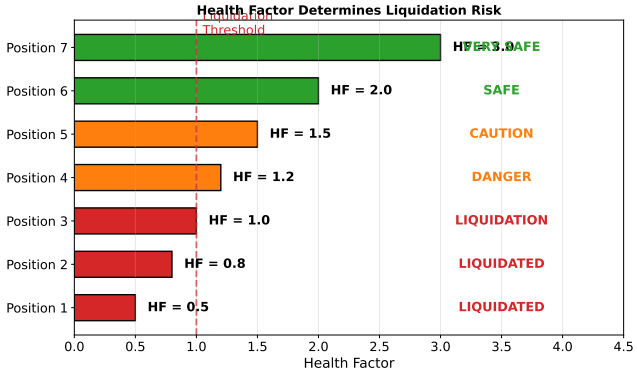
Process:

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

Understanding Health Factor



Health factor below 1.0 triggers liquidation

Step 3: Borrow Assets

Goal: Borrow USDC against ETH collateral

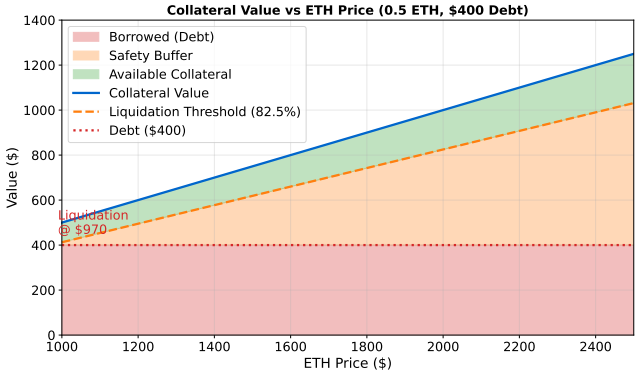
Health Factor Formula:

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

Example:

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

Collateral vs Liquidation Risk



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

Lab Deliverables

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

Key Takeaways

- 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