

Project for FE5222

October 4, 2024

1 Requirements

1. Maximum 5 students in one group.
2. Each group is required to submit a final report together with source code for your project, stating in details the pricing method, test results and analysis of results.
3. **Deadline:** November 30th, 2024

2 Pricing American Option

In this project, you will

1. Implement Spectral Collocation Method for pricing American options
2. Replicate Table 2 in the paper *High Performance American Option Pricing*
3. Analyze the results in terms of accuracy, numerical stability and convergence speed for the difference choices of model parameters l, m, n and spot price S , interest rate r , dividend q and time to maturity τ .
4. (**optional**) Implement Crank-Nicolson method and compare it with Spectral Collocation Method.

3 References

1. <https://github.com/antdvid/FastAmericanOptionPricing>
2. QuantLib:
<https://github.com/lballabio/QuantLib/blob/master/ql/pricingengines/vanilla/qdfpamericanengine.cpp>