

Computation, Problem Set #6, Numerical Differentiation, Integration, and Linear Constrained Optimization

OSM Lab, Jan Ertl

Due Tuesday, July 31 at 6:00pm

Do the following Exercises from the Brigham Young University Applied Mathematics and Computational Emphasis (ACME) Python labs [Humpherys and Jarvis \(2017\)](#) and from Richard Evans' notes.

1. **Exercises from [ACME: Numerical Differentiation](#) lab.** Do problems 1 through 7 from [Numerical Differentiation](#) lab. You will need to download the [plane.npy](#) file, which is saved in the course repository.
2. **Exercises from [Evans: Numerical Integration](#) lab.** Do exercises 14.1 through 14.9 from [Numerical Integration](#) lab.
3. **Exercises from [ACME: Simplex Method](#) lab.** Do problems 1 through 7 from [Simplex Method](#) lab. You will need to download the [productMix.npz](#) file, which is saved in the course repository.
4. **Exercises from [ACME: Iterative Solvers](#) lab.** Do problems 1 through 7 from [Iterative Solvers](#) lab.
5. **Exercises from [ACME: Newton's Method](#) lab.** Do problems 1 through 7 from [Newton's Method](#) lab.

References

Humpherys, Jeffrey and Tyler Jarvis, "Computational Labs for Foundations of Applied Mathematics, Volumes I and II," 2017.