

Computation, Problem Set #4, Differentiation, Integration, and Optimization

OSM Lab, Justin Gardiner

Due Thursday, July 20 at 8:00am

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: QR Decomp 1 lab](#).** Do problems 1 through 5 from [QR Decomp 1 lab](#).
2. **Exercises from [ACME: QR Decomp 2 lab](#).** Do problems 1 through 6 from [QR Decomp 2 lab](#). You will need to download the [housing.npy](#) and [ellipse.npy](#) files, which are saved in the course repository.
3. **Exercises from [ACME: SVD Image Compress lab](#).** Do problems 1 through 5 from [SVD Image Compress lab](#). You will need to download the [hubble.jpg](#) file, which is saved in the course repository.
4. **Exercises from [ACME: Drazin Inverse lab](#).** Do problems 1 through 5 from [Drazin Inverse lab](#). You will need to download the [social_network.csv](#) file, which is saved in the course repository.
5. **Exercise from [QuantEcon: Need for Speed lab](#).** Do exercise 1 from [Need for Speed lab](#).

References

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