

---

# Data Fitting Report

---

## Exercise 3

Comparison between interpolating polynomial and natural cubic spline

Cesare De Cal

Professor: Annie Cuyt

Assistant Professor: Ferre Knaepkens

# 1 Introduction

The goal of this exercise is to compute and plot the interpolating polynomial and the natural cubic spline of a set of data points provided by an imaginary chemistry experiment, and to draw conclusion on it. Here are the data points:

$x_i$	-1	-0.96	-0.86	-0.79	0.22	0.50	0.93
$f_i$	-1.000	-0.151	0.894	0.986	0.895	0.500	-0.306

To compute the interpolating polynomial, I am going to use the Lagrange method saw in class.

# 2 Tools

The following programming language and libraries have been used in this exercise:

- Python 3.7
- SciPy

The following NumPy methods of the SciPy environment have been used in this exercise:

- `numpy.array`
- `numpy.linspace`
- `numpy.polynomial.polynomial`

The following Matplotlib methods of the SciPy environment have been used in this exercise:

- `matplotlib.pyplot.plot`
- `matplotlib.pyplot.legend`
- `matplotlib.pyplot.show`