# Assignment 5 - Logistics Regression on Titanic Data

*The purpose of this assignment is to use Python to practice logistic regression*

This assignment provides you with an opportunity to demonstrate the achievement of the following course learning outcomes:

* Understand and apply Python programming language
* Understand and apply logistic regression
* Understand what feature categories are suitable for logic regression analysis

## Key Information

* **Type:** *Individual*
* **Weight:** 6.25%
* **Delivery:** Course website upload
* **Due Date:** End of lab session

## Expectations

You are expected to complete this assignment individually.

Respect for academic integrity is crucial to your success. Make sure you understand what constitutes acts of academic dishonesty in the page: [What is Academic Dishonesty?](http://mcmaster.ca/academicintegrity/students/whatis.html)

## Instructions

*Using R/Python, you are to complete the following questions.* ***Please submit your answers (CODE USED AND OUTPUT) as Either iPYNB or PDF* *files to the course website submission folder. If it is a pdf, please make sure that all outputs are exported to the pdf- not just the code.***

*Upload Titanic dataset*

*Repeat Assignment 4*

*Use GridSearchCV to fit the logistic regression with a dictionary of values for C* .

[**sklearn.model\_selection**](http://scikit-learn.org/stable/modules/classes.html#module-sklearn.model_selection)**.GridSearchCV**

*See what is the best value for the Hyperparameter, using the accuracy score*

*Investigate the difference between L1 and L2 for the outcome. Is there a difference?*

*Investigate the results of using different cross validation values*

*For the different investigation procedures, plot the accuracy outcome compared to the different parameters. For example, Accuracy VS. the value of C.*

*Use Accuracy, Sensitivity, selectivity, and F1-score to assess the final performance of the chosen model.*

## Rubric

To achieve full marks on this assignment, you must have answered all questions above correctly with code submitted that has no errors.