# Course Plan Outline

As the first stage of creating a course on the Turing’s Online Learning Platform, educators are asked to share the top level plan for their course and the modules it will comprise. This will allow the Skills team to set up the structure on the platform, provide educators with any relevant templates, and install any specialised plugins that may be needed.

An example is provided below.

Please complete the plan starting on page 3. You can add or delete sections as needed.

Please return your completed course plan to [learn@turing.ac.uk](mailto:learn@turing.ac.uk).

Example plan:

**Course title**: Mitigating Bias in AI

**Number of modules** *(Note: Modules will normally broken up into several shorter sections)*: 5

**Expected course duration (in hours):** 20

**Brief introduction for the course (3-5 sentences**): This project introduces and provides a guide to evaluating and addressing issues of bias and fairness in artificial intelligence (AI) systems. Bias in AI has become one of the central concerns in trying to create trustworthiness in the development and deployment of systems in the world. We will analyse potential biases that arrive when automated-decision making is invoked into this problem, particularly focusing on gender and ethnicity. We will train, assess and mitigate any bias arising from a machine learning system.

**Module 1**

|  |  |
| --- | --- |
| **Title** | Sources, Forms and Quantification of Bias in AI |
| **Learning objectives / outcomes** | By the end of this module participants should be able to:   1. Describe multiple sources of bias in algorithms 2. Define fairness and what metrics are associated with fairness 3. Use a sample dataset to measure model bias in two ways, and get a confidence interval for each metric used |
| **Introduction** | In this module, we start looking at some technical aspects of bias and fairness in AI: given a machine learning problem, how can we assess and measure bias? What are the different types of bias and where do they come from? The session is divided into two main parts: Theory and Practice. |
| **Module sections** | **Part 1: Theory** (4 videos with slides)   * **Theory 1: Real-life examples of bias in algorithms** * **Theory 2: Sources of Bias** * **Theory 3: Fairness definitions and metrics** * **Theory 4: Choosing a metric**   **Part 2: Practice**  We look at a specific Supervised Learning problem where a company uses an algorithm in their hiring process to decide which candidates go to the next round. |
| **Learning checks / activities**  *(note: Ideally there will be one for each section listed above)* | Part 1: Theory videos will each be followed by 3-5 questions (likely multiple choice) to check understanding  Part 2: Practice section will consist of 4 notebooks where learners will explore the data, use different methods to measure model bias, and use bootstrap sampling to get a confidence interval for each metric |
| **Assessment (optional)** | None required |

*[Use the tables below to enter details for your own modules. Just copy and paste the table for each new module.]*

**Course title**: [Insert here]

**Number of modules** *(Note: Modules will normally broken up into several shorter sections)*: [Insert here]

**Expected course duration** (in hours): [Insert here]

**Brief introduction for the course** (3-5 sentences): [Insert here]

Module 1

|  |  |
| --- | --- |
| **Title** |  |
| **Learning objectives / outcomes** |  |
| **Introduction** |  |
| **Module sections** |  |
| **Learning checks / activities**  *(note: Ideally there will be one for each section listed above)* |  |
| **Assessment (optional)** |  |

Module 2

|  |  |
| --- | --- |
| **Title** |  |
| **Learning objectives / outcomes** |  |
| **Introduction** |  |
| **Module sections** |  |
| **Learning checks / activities**  *(note: Ideally there will be one for each section listed above)* |  |
| **Assessment (optional)** |  |

*[& etc.]*