



Syllabus: Advanced AI & Open Science TU Berlin Summer University 2020 Term 3

Week 1 July 20th - 24th

	20	21	22	23	24
	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 10:30	Welcome Day! Orientation and 1st session	Python: Basic and git	Python: Basic and git (exercise session)	Python: Basic and git	No class
11:00 - 12:30		ML:Supervised Learning	ML: Classifiers	ML:Classifiers (exercise session)	Cultural Program
13:30 - 15:30		Introduction to Probability	Cultural Program	Introduction to Probability (exercise session)	
16:00 +					

Week 2 July 27th- 31st

	27	28	29	30	31
	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 10:30	Python: Basic and git (exercise session)	Python: Introduction to visualisation Techniques	Python: Introduction to visualisation Techniques (exercise session)	Python: Introduction to visualisation Techniques	No class
11:00 - 12:30	ML: Multilayer perceptron	ML: Multilayer perceptron (exercise session)	Bellman equation	ML:Multilayer perceptron	Cultural Program
13:30 - 15:30	Markov Decision Processes	Markov Decision Processes (exercise session)	Cultural Program	Bellman equation (exercise session)	
16:00 +	Cultural Program				

Week 3 August 3rd - 7th

	03	04	05	06	07
	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 10:30	Python: A first challenge	Python: Gradient Descent	Python: Introduction to Tensorflow	Python: Introduction to Tensorflow (exercise session)	No class
11:00 - 12:30	ML: Multilayer perceptron (exercise session)	Deep Learning	Deep Learning	Deep Learning	
13:30 - 15:30	A survey on basic RL Algorithms	A survey on basic RL Algorithms (exercise session)	Cultural Program	Q Learning	
16:00 +	Cultural Program		Cultural Program		

Week 4 August 10th - 14th

	10	11	12	13	14
	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 - 10:30	Python: Tensorflow and NN	Python: Tensorflow and NN (exercise session)	Workshop	Workshop	Exams
11:00 - 12:30	Deep Learning	DQN with applications	Workshop	Exams	Feedback session
13:30 - 15:30	Q Learning	Open Ai Gym		Exams	Certificates Ceremony
16:00 +	Cultural Program				

Key

Lecture	Field Trip or Practical	Assessment	Cultural Program activity*
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*The cultural program timetable will be emailed to you shortly before your course starts. For more information about the cultural program, and for examples of previous schedules, head here: https://www.tu-berlin.de/menue/summer_university/cultural_program/

Assessment information

You will be assessed in the following ways (see yellow sessions in schedule, if applicable):

- Presentation of first prototype
- Presentation of pre-final prototype
- Final presentation

Your assessments will be weighted as follows:

- Presentation of first prototype 20 %
- Presentation of pre-final prototype 20 %
- Final presentation 60 %

Grading information

All participants of the TU Berlin Summer & Winter University are required to select their grading option at the time of registration. The two options available are (i) graded or (ii) pass/fail.

All participants who select option (i) graded, will receive a grade under the German grading system. The following table provides an overview of the grading system and equivalent scores for international credit transfers:

Total mark	German grade	English description
More or equal to 95	1,0	Excellent
More or equal to 90	1,3	Very good
More or equal to 85	1,7	Good
More or equal to 80	2,0	Good
More or equal to 75	2,3	Good
More or equal to 70	2,7	Satisfactory
More or equal to 65	3,0	Satisfactory
More or equal to 60	3,3	Satisfactory
More or equal to 55	3,7	Sufficient
More or equal to 50	4,0	Sufficient
Less than 50	5,0	Failed

Credit Points

ECTS is a point system and European standard developed by the Commission of the European Community. ECTS stands for European Credit Transfer System. The aim is to provide common procedures and guarantee academic recognition of studies abroad. The credit system is based on student workload. All lectures, seminars, excursions and homework count towards the workload. One point is awarded for the equivalent of 25-30 hours of workload.

Reading list

Here are reading materials which will be used or referred to during the course. You are not required to read these in advance – this is for your information and reference.

All sources below are available either open source, in the TU Berlin library, or will be provided to you directly by your lecturers, during the course.

To search resources available in the TU Berlin library, check here: <https://www.ub.tu-berlin.de/en/searching-for-resources/>