

Module	Submodule	Unit	Trajectory					Research cycle					Title	Description	
			General	Phi personal	Phi	Meth	Meteo	Theory	Hypothesis	Exp.	Analysis	Conclusion			Synthesis
0			-	-	-	-	-	-	-	-	-	-	-	Introduction to the course	
0	0.1		.	.	.	.	.	.	.	.	.	.	.	Introduction to the course	
1			-	-	-	-	-	-	-	-	-	-	-	Know they tools	
1	1.1		.	.	.	.	.	.	.	.	.	.	.	Program	
1	1.1	1.1.1	x		x	x	x							Introduction + learning objectives	
1	1.2		.	.	.	.	.	.	.	.	.	.	.	Context and theory	
1	1.2	1.2.2				x		x						Research cycle in six steps	
1	1.2	1.2.3				x		x						Relationship between theory and models	
1	1.3		.	.	.	.	.	.	.	.	.	.	.	Hypothesis	
1	1.3	1.3.2				x		x						Properties of a good research question	
1	1.3	1.3.3				x		x						Test the quality of our research question	
1	1.4		.	.	.	.	.	.	.	.	.	.	.	Experiment and analysis	
1	1.4	1.4.2				x		x						Introducing the CLASS Model	
1	1.4	1.4.3				x		x						Design of the sensitivity experiment in relation to the research question	
1	1.4	1.4.4				x		x						Motivation for model validation	
1	1.5		.	.	.	.	.	.	.	.	.	.	.	Conclusion	
1	1.6		.	.	.	.	.	.	.	.	.	.	.	Synthesis	
2			-	-	-	-	-	-	-	-	-	-	-	Everything has a cause	
2	2.1		.	.	.	.	.	.	.	.	.	.	.	Program	
2	2.1	2.1.1	x		x	x	x							Introduction + learning objectives	
2	2.2	2.2.2				x		x						Scientific research cycle in 3 steps: observation, induction, verification	
2	2.2	2.2.4				x		x						Relation between a cause and an effect	
2	2.3		.	.	.	.	.	.	.	.	.	.	.	Hypothesis	
2	2.3	2.3.2				x		x						Causality is a relation between a cause and its effect,	
2	2.4		.	.	.	.	.	.	.	.	.	.	.	Experiment analysis	
2	2.5		.	.	.	.	.	.	.	.	.	.	.	Conclusions	
2	2.6		.	.	.	.	.	.	.	.	.	.	.	Synthesis	
3			-	-	-	-	-	-	-	-	-	-	-	Trust, verify, falsify	
3	3.1		.	.	.	.	.	.	.	.	.	.	.	Program	
3	3.1	3.1.1	x		x	x	x							Program and learning objectives	
3	3.2		.	.	.	.	.	.	.	.	.	.	.	Theory	

3	3.2	3.2.2			x															Hypothetical-deductive method: research cycle following Popper
3	3.2	3.2.4			x															Feedback loops
3	3.3		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Hypothesis
3	3.4		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Experimental and Analysis
3	3.4	3.4.3			x															Model validation as an iterative process
3	3.4	3.4.4			x															Guidelines to setup your sensitivity experiment
3	3.5		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Conclusions
3	3.6		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Synthesis
4			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Scientific Progress is all about Asking Questions
4	4.1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Program
4	4.1	4.1.1	x		x	x	x													Program and learning objectives
4	4.2		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Theory
4	4.3		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Hypothesis
4	4.4		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Experiments and analysis
4	4.4	4.4.2			x															Scientific groups, what is your research identity?
4	4.5		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Conclusions
4	4.5	4.5.2			x															Guidelines to draw conclusions
4	4.6		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Synthesis
4	4.6	4.6.2			x															Guidelines for an effective synthesis
5			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	To plan or not to plan
5	5.1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Program
5	5.2		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Writing your proposal
5	5.2	5.2.1			x	x	x	x	x											Formulate your research motivation, research question and method; consult with your peers
5	5.2	5.2.2			x	x	x	x	x											Write your proposal
5	5.3		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Receiving feedback
5	5.3	5.3.1			x	x	x	x	x											Receive and provide feedback
5	5.3	5.3.2			x	x	x	x	x											Finalize your proposal and hand it in
6			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	The proof of the puddin
6	6.1		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Program
6	6.2		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Performing your research
6	6.2	6.2.1			x	x		x	x	x	x	x	x	x						Reflect on questions regarding your methodology
6	6.2	6.2.2			x	x	x	x	x	x	x	x	x	x						Perform your research project
6	6.2	6.2.3			x	x	x	x	x	x	x	x	x	x						Write your research report
6	6.3		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	Receiving feedback
6	6.3	6.3.1			x	x	x	x	x	x	x	x	x							Receive and provide feedback
6	6.3	6.3.2			x	x	x	x	x	x	x	x	x							Finalize your report, including appendices on methodology and your checklist; and hand it in