

Spécification et Validation de Programmes

5I554

Lecture 0 : Timeline

Pierre-Évariste DAGAND
`pierre-evariste.dagand@lip6.fr`

Université Pierre & Marie Curie

Outline

How?

- Induction (Lecture 8, 2017-11-28)
- Effectful programming (Lecture 10, 2017-12-12)

What?

- Mechanized semantics (Lecture 9, 2017-12-05)
- Program logics (Lecture 11, 2017-12-19)

Practice

- Praticals (every week, with Darius)
- Mini-project
(Lecture 12 to 14, 2018-01-09, 2018-01-16 & 2018-01-23)

Why?

- Deductive program verification
 - Why3 (ML)
 - Dafny (C#)
 - Leon (Scala)
 - ...
- Cryptography
 - EasyCrypt
 - CryptoVerif
 - F^*
 - ...
- Certified programming
 - B-method (*e.g.*, line 14)
 - Coq (*e.g.*, CompCert)
 - Isabelle (*e.g.*, seL4)
 - Agda, Idris, ...
- ...

Rules of the Game

- Basic maths:

$$\begin{aligned} 6 \text{ ECTS over 28 weeks} &= 6 \times 28\text{h}/14 \text{ weeks} \\ &= 12\text{h of work/week} \end{aligned}$$

- Lecture: 2 hours/week
- Practicals: 2 hours/week
- Homework: 8 hours/week

Pedagogical Material

<https://github.com/pedagand/5I554/>
<http://bit.ly/2j1imBh>

