

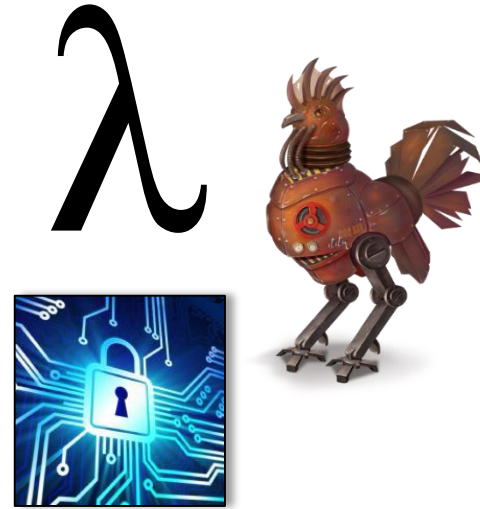
Foundations of Programming Languages, Verification, and Security

Winter 2023/24 @ Ruhr Uni Bochum

Lecturers: Rob Blanco and Cătălin Hrițcu

Teaching Assistant: Jérémy Thibault

Max Planck Institute for Security and Privacy (MPI-SP)



Foundations of Everything

- **Programming Languages**

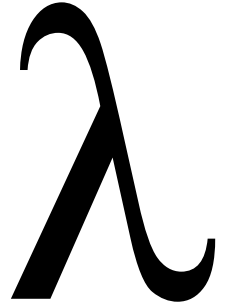
- Imp and Simply Typed Lambda-Calculus (functional)
- type systems, program equivalence, semantics, metatheory

- **Verification**

- Hoare Logic: verify Imp programs
- Relational Hoare Logic (RHL)

- **Security**

- Information Flow Control: enforcing noninterference
 - Static enforcement: RHL, types, cryptographic constant time



Course evaluation starts today

- **Please participate**
 - your feedback is very important to us
 - help us make this better!
 - need 3+ participants to see the results
- **Standard evaluation form**
- **More details via Moodle this morning**

Final exam

- **Wednesday, 21 February at 9:30-11:30**
 - In the same room as the lecture and exercise sessions
 - Please arrive at least 15 minutes in advance
 - Please bring an indelible pen in black or blue
 - Please bring your student ID

Prequel course next semester

Functional Programming λ



OCaml

Lecturers: Rob Blanco, Clara Schneidewind, Cătălin Hrițcu