

# Master 2 CyberSecurity

Welcome kickoff meeting

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# The Master 2 Cybersecurity

A second year Master specialization in the field of Cybersecurity

**International: taught in english**

**Two possible majors:**

- ▶ Mention Mathématiques et applications
- ▶ Mention Informatique

**Cooperated by**

- ▶ UFR IM2AG, Faculté des Sciences, UGA
- ▶ Ensimag, Grenoble INP - UGA

**Goal:** training experts on the field of cybersecurity:

**Cryptography:** symmetric, asymmetric, post-quantum

- ▶ Mathematics Foundations
- ▶ Cryptographic primitives and protocols: principle and analysis
- ▶ Security models and security proofs, attacks

**Security:**

- ▶ software security : vulnerability, forensic, static analysis
- ▶ hardware security: embedded systems, quantum cryptography
- ▶ security architectures: PKI, blockchain, network

**Audit and risk analysis:**

- ▶ Pentesting
- ▶ Standardized methods:: E-BIOS ISO2700x, etc
- ▶ Threats and models of attacks

Units (UE)	ECTS	Semestre
<b>Software Security</b> secure programming and computer forensic	3	S9
<b>Security Architectures</b> network, system, key management, blockchains, cybersecurity of industrial IT	6	S9
<b>Cryptographic Engineering</b> , protocols and security models, data privacy, coding and applications	6	S9
<b>Security Audit and Risk Analysis</b>	3	S9
<b>Hardware and embedded systems security</b>	6	S9
<b>Elective course: Advanced Crypto or Security</b>	6	S9
<b>Internship: &gt; 5 months in a company or research lab</b>	30	S10

## You are coming from

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### International students

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Master 1 UGA

M1 Maths Générales

M1 Applied Maths

M1 MoSIG

M1 Informatique

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Engineer school, Grenoble INP

Ensimag

Phelma

Esisar

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## You will likely become

- ▶ Engineers experts in cybersecurity:
  - ◇ Audit, Pentesting
  - ◇ Consulting
  - ◇ Experts
- ▶ State/government agencies employees:
  - ◇ ANSSI
  - ◇ Ministère des Armées
- ▶ Phd students:
  - ◇ In a research laboratory
  - ◇ Often with an industrial partner
  - ◇ Phd's are finally well recognized on the job market especially in the field

# Welcome to a dynamic industrial and academic network

## Local industrial partners

- ▶ ST Microelectronics
- ▶ ATOS
- ▶ Worldgrid
- ▶ Schneider Electric
- ▶ Soitec
- ▶ MathWorks, ...

## National industrial partners

- ▶ Thalès
- ▶ Consensusys
- ▶ C-S
- ▶ Orange labs
- ▶ Quarkslab, ...
- ▶ EDF, SNCF

## State/Governmental agencies

- ▶ Ministère des Armées
- ▶ ANSSI, ...

## Research labs

- ▶ LIG, LJK, Verimag, TIMA, IF
- ▶ LCIS, GSCOP, Cerag
- ▶ Inria
- ▶ CEA-LETI (CESTI), CEA-LIST

## Institutes and federations

- ▶ Cybersecurity Institute UGA
- ▶ IRT nano-elec
- ▶ Cyberskills@UGA

## Good news: your skills are highly wanted

- ▶ Cybersecurity job shortage: since over 10 years, and not to end soon
- ▶ Estimates of over 3.5M vacant full time positions worldwide
- ▶ Among the top priorities for France 2030 investments:
  - Compétences et Métiers d'Avenir program (Cyberskills@UGA)
- ▶ Typically over 60% of our students have job option before graduating



# Organization and regulations

- ▶ Main site for the program: <https://cybersecurity.imag.fr>

## Regulations

- ▶ Evaluation in most courses: 50% final exam + 50% lab work/ mid-terms
- ▶ Lab works/ mid-term exams are mandatory: Justified absence = ABJ = 0/20.  
Unjustified absence = ABI = FAILED
- ▶ To validate each semester: no less than 10/20 average
- ▶ Threshold: no course below 7/20
- ▶ Second session exams: to improve on the final exam grade of the courses of your choice if the semester is not passed.
- ▶ Final jury for the diploma: mid-September 2014

**Advanced Security** Laurent Mounier

**Advanced Cryptography** Pierre Karpman and Emmanuel Peyre

- ▶ 5+ weeks to make up your mind
- ▶ Presentation meeting in October
- ▶ Decision by October 25th

# Organization of the coming year

## Semester 9

**Part 0:** Refresh week Sept 18–22

**Part 1:** Regular program. 5 weeks Sept 25 – Oct 27

**Part 2:** Regular + elective courses. 8 weeks Nov. 6 – Jan 10

**Exams:** Week of Jan 15–20

## Semester 10: Internship

- ▶ At least 5 months
- ▶ Starting in February 2024
- ▶ Defenses: first week of September 2024  
→ start now looking for an internship

# Semester 9 planning: 14 weeks

Planning on ADE: <https://edt.grenoble-inp.fr/2023-2024/exterieur/?resources=11151>

5 semaines : du 25 Septembre au 27 Octobre  
moins Jeudi 12 octobre, FEEL

7 semaines : du 6 Novembre au 22 Décembre  
Moins vendredi 17 novembre GreHack

	Lundi	Mardi	Mercredi	Jeudi	Vendredi
3h+1.5h Matin	RATTRAPAGE	GBCY9U05 Embedded Sec.	GBCY9U05 Embedded Sec.	GBCY9U03 Crypto Eng.	GBCY9U03 Crypto Eng.
	GBCY9U04 Risk Analysis	GBCY9U02 Security Arch.	GBCY9U05 Embedded Sec.	GBCY9U03 Crypto Eng.	Anglais Ensimag
	GBCY9U04 Risk Analysis	GBCY9U02 Security Arch.	RATTRAPAGE	RATTRAPAGE	
3h Après-midi	GBCY9U02 Security Arch.	GBCY9U03 Crypto Eng.	GBCY9U01 Software Security	conférences industrielles + RATTRAPAGE	GBCY9U05 Embedded Sec.
Occurrences	5	5	5	4	5

	Lundi	Mardi	Mercredi	Jeudi	Vendredi
3h+1.5h Matin	GBCY9U04 Risk Analysis	GBCY9U02 Security Arch.	GBCY9U03 Crypto Eng.	OPTION: - Adv Secu - Adv Crypto	GBCY9U03 Crypto Eng.
	GBCY9U04 Risk Analysis	GBCY9U02 Security Arch.	GBCY9U03 Crypto Eng.	OPTION: - Adv Secu - Adv Crypto	Anglais Ensimag
	GBCY9U05 Embedded Sec.	RATTRAPAGE	RATTRAPAGE	GBCY9U05 Embedded Sec.	
3h Après-midi	GBCY9U02 Security Arch.	GBCY9U01 Software Security	OPTION: - Adv Secu - Adv Crypto	conférences industrielles + RATTRAPAGE	GBCY9U05 Embedded Sec.
Occurrences	7	7	7	7	6

Semaine du 19 Septembre 2023

Semaine du 8 janvier 2024

	Lundi	Mardi	Mercredi	Jeudi	Vendredi
3h+1.5h Matin	8h15-9h45 Ram KICK-OFF	GBCY9U02 Security Arch.	RATTRAPAGE	RATTRAPAGE	RATTRAPAGE
	9h45-11h15	GBCY9U03 Crypto Eng.	GBCY9U02 Security Arch.	GBCY9U02 Security Arch.	REX
	11h15-12h45	RATTRAPAGE	RATTRAPAGE	GBCY9U02 Security Arch.	REX
3h Après-midi	GBCY9U03 Crypto Eng.	GBCY9U03 Crypto Eng.	GBCY9U03 Crypto Eng.	REX	REX

	Lundi	Mardi	Mercredi	Jeudi	Vendredi
3h+1.5h Matin	GBCY9U04 Risk Analysis	GBCY9U01 Software Security	GBCY9U05 Embedded Sec.		
	GBCY9U04 Risk Analysis	GBCY9U01 Software Security	GBCY9U03 Crypto Eng.	Révisions	Révisions
	RATTRAPAGE	RATTRAPAGE	RATTRAPAGE		
3h Après-midi	OPTION: - Adv Secu - Adv Crypto	OPTION: - Adv Secu - Adv Crypto	RATTRAPAGE	Révisions	Révisions

## Semester 10: Internship

- ▶ Instructions available on <https://cybersecurity.imag.fr>
- ▶ **Warning** Procedure depends on your registration (UFR or Ensimag)
  - Ensimag:** <https://e-stages.grenoble-inp.fr/>
  - UFR:** [im2ag-gestion-stages@univ-grenoble-alpes.fr](mailto:im2ag-gestion-stages@univ-grenoble-alpes.fr)information sheets, then e-signatures on the work contract
- ▶ A comfortable planning:
  1. Prospection in October and November
  2. Application before Christmas break
  3. Paperwork in January
  4. Start in February
  5. a bit of slack: 5 months required in a period of 7 months
- ▶ We maintain a page on chamillo with internship offers, but
- ▶ Search also on your side, and if need, ask us for assistance
- ▶ Further information:
  - <https://www.ssi.gouv.fr/guide/panorama-des-metiers-de-la-cybersecurite/>
  - <https://www.ssi.gouv.fr/guide/les-profils-de-la-cybersecurite/>

- ▶ Either at UFR IM<sup>2</sup>AG (ex M1 students and international students)
- ▶ or Ensimag (ex Ensimag 2A or Phelma 2A students)

Please always use your institutional address (@univ-grenoble-alpes.fr or @grenoble-inp.fr)

## **Choice the Major of your Master degree**

- ▶ Computer Science
- ▶ Mathematics and applications

# International Students & Scholars Office (ISSO)

## Comment ? How?



<https://international.univ-grenoble-alpes.fr>

> Section « Votre séjour à l'UGA » > « **Getting Organized** » section

- Logement, titres de séjour, assurances, dispositifs d'aide et de soutien, espaces d'accueil, etc.
- Guides et fiches pratiques pdf téléchargeables
- **Accommodation, residence permits, insurances, support services, services centers, etc.**
- **Welcome guides and info sheets available**



**Accueil :**

**Welcome:**

Grenoble
<b>Bâtiment iCampus – Welcome Center</b> 1025 Avenue Centrale Campus Saint-Martin-d'Hères Tram B & C « Bibliothèques Universitaires »

Valence
<b>Site Briffaut</b> DSDA, Bâtiment 2 <b>Site Latour-Maubourg</b> Maison de l'Etudiant



**Temps d'infos rentrée : vos démarches à l'arrivée**

**Info sessions: first steps upon arrival**

- Assurances, compte en banque, assurance maladie, etc.
- Chaque semaine en septembre (programme sur le portail international de l'UGA)
- **Insurances, bank account, healthcare system, etc.**
- **Each week in September (program on UGA international website)**

# Rule of conduct

**Fraud and plagiarism** are strictly forbidden

- Team work is not copy/paste
- Applies to all documents subject to an evaluation (Lab reports, exams and internship reports)
- When detected, triggers a **disciplinary commission**
- Sanctions from simple warning to permanent expulsion from any public higher education institution

**Fight against Gender based Violence and discrimination :**

**Gender-Based violence and harassment, disability, racism, anti-semitism, homophobia, transphobia, religious discrimination...**

During class and lectures

In your student life

In your internship

During student events

→ **Zero tolerance**

<https://declaration-vss-discrimination.univ-grenoble-alpes.fr>

## GENDER-BASED VIOLENCE (GBV)

Zero tolerance at the  
Université Grenoble Alpes (UGA)

Whether you are a victim or a bystander, all gender-based violence must be reported: <http://declaration-vss-discriminations.univ-grenoble-alpes.fr>

Learn more about the new system to combat GBV at UGA



If you've experience gender-based violence, UGA can help.

Gender-based violence includes all unwanted sexual attention as well as inappropriate sexist or gender-based behavior. The behavior might take different forms, for example sexist remarks, sexual harassment, exhibitionism, blackmail, threats, voyeurism, pornographic images or messages...

It also includes all use of force or coercion in sexual situations, from forced kissing or touching to rape and sexual assault, the use of drugs or debilitating substances, sexual exploitation...

Sexist and sexual violence covers all situations where a person imposes on others a behavior or comments of a sexual nature. This violence can take various forms: sexist remarks, sexual harassment, exhibitionism, sexist outrage, blackmail, threats, voyeurism, messages or pornographic images and even the use of force, from forced kisses to sexual assault and rape, through administration of harmful substances, sexual exploitation of others.

You can also contact France Victime 38 association, social prevention association and victim support service (FV38) call 116 006 (free service and call, 7 days a week from 9 a.m. to 7 p.m.).



**UGA**  
Université  
Grenoble Alpes



**2023-11-17 (day off):** Grehack <http://grehack.fr/>

**2023-10-12 (day off) :** FEEL

<https://ensimag.grenoble-inp.fr/fr/entreprises/feel-2020>

**2023-10-10** Forum Emploi Maths <https://2023.forum-entreprises-maths.fr>

**2024-03-26** Forum International de la Cybersécurité <https://www.forum-fic.com/>

## Head of the M2 Cybersecurity Program

- ▶ Laurent Mounier: [Laurent.Mounier@univ-grenoble-alpes.fr](mailto:Laurent.Mounier@univ-grenoble-alpes.fr) (UGA)
- ▶ Clément Pernet: [Clement.Pernet@univ-grenoble-alpes.fr](mailto:Clement.Pernet@univ-grenoble-alpes.fr) (Grenoble INP – UGA)

For any question, address your message to both of us.

## Scolarity staff

- ▶ Carine Beaujolais: [Carine.Beaujolais@univ-grenoble-alpes.fr](mailto:Carine.Beaujolais@univ-grenoble-alpes.fr)
- ▶ ???(hiring in process): [m2cybersec@ensimag.fr](mailto:m2cybersec@ensimag.fr)