Information session on the PhD

Faculty of Applied Sciences

November 7, 2018
Outline

• The PhD in general
  • Practical aspects about the PhD
  • Testimony from the industry
  • Posters and informal discussion
What is a PhD?

Original contribution
Not a revolution!

Your own journey
Not alone!

Further education
Not a fancy title!

Consequent research
Not a TFE!

Student + Researcher
What is specific to a PhD?

**International exposure**
- Collaborations
- Research stays
- Conferences

**Publications**
- Journals
- Conferences

**Visibility**
- Feedback
- Professional network
What will I learn?

To become a scientist

- **Expert** in your field
- **Independent** and **creative** researcher
- **Analytical** and **critical** thinker
- Good **communicator**
- **Collaborator** with other research teams

... and an innovator

- Drive **innovation** (condition for survival in the future)
- Tackle **new** problems
- Understand **complex** thematics
- **Lead** research teams
- Work **internationally**
Am I cut for a PhD?

Motivated?  Curious?  Independent?

Good PhD candidate

No need to be a genius!!!
What could I do after a PhD?


- Postdoctoral research (20%)
- Private sector – Research (18%)
- Private sector – Other (18%)
- Higher education (11%)
- Independent (4%)
- Job searching (3%)
- Public sector – Research (16%)
- Public sector – Other (6%)
- Other (4%)

101 responses (96%), from 2013-14 to 2016-17
What could I do after a PhD?

Time to employment (2013-2017)

Before graduation (52%)

Within 3 months (32%)

Within 1 year (15%)

Unknown (1%)

101 responses (96%), from 2013-14 to 2016-17
So, how does it work?

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Approx. timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Familiarization with subject</td>
<td></td>
</tr>
<tr>
<td>Literature review</td>
<td></td>
</tr>
<tr>
<td>Research definition and structure</td>
<td></td>
</tr>
<tr>
<td>Advance courses</td>
<td></td>
</tr>
<tr>
<td>Tools/experiments development</td>
<td></td>
</tr>
<tr>
<td>Measurements/simulations/…</td>
<td></td>
</tr>
<tr>
<td>Results analysis</td>
<td></td>
</tr>
<tr>
<td>Conference presentations</td>
<td></td>
</tr>
<tr>
<td>Papers publications</td>
<td></td>
</tr>
<tr>
<td>Refinements and optimization</td>
<td></td>
</tr>
<tr>
<td><strong>Written thesis</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Oral defense</strong></td>
<td></td>
</tr>
</tbody>
</table>

Approx. timeline:
- Year 0: Familiarization with subject, Literature review, Research definition and structure, Advance courses
- Year 1: Tools/experiments development
- Year 2: Measurements/simulations/…
- Year 3: Results analysis, Conference presentations, Papers publications
- Year 4: Refinements and optimization, Written thesis, Oral defense
What is the role of the advisor?

Advisor = Mentor

A guide to help you ...

- defining and **structuring** your project
- identifying potential issues and **solutions**
- developing your scientific **network**

An evaluator who will ...

- provide **feedback**
- follow your advancement
- **assess** your results
Outline

• The PhD in general

• Practical aspects about the PhD

• Testimony from the industry

• Posters and informal discussion
What are the requirements?

To start a PhD

- Master degree (300 credits)
- Adequate grades (one prior “Distinction”)
- A research topic
- An advisor and adequate funding

To complete a PhD

- Minimum 3 years
- 60 credits of doctoral training
- Written thesis
- Oral defense
What is the doctoral training?

**Thematic training**
- 3rd cycle courses
- Topical seminars
- Specialized courses
- ...

**Generic (soft) skills**
- Language / communication courses
- Teaching assistantship / supervision
- Research stays abroad
- ...

**Scientific production**
- Conferences and seminars
- Articles in peer-reviewed journals (min. 1)
- ...

Min. 60 credits

Min. 15 credits

Min. 10 credits

Min. 25 credits
## How can I finance my PhD at ULiege?

<table>
<thead>
<tr>
<th>Funding source</th>
<th>Topic</th>
<th>Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNRS Fellowship</td>
<td>Free</td>
<td>~ Feb. 2019</td>
</tr>
<tr>
<td>FRIA Fellowship</td>
<td>Free (“industrial”)</td>
<td>~ Aug. 2019</td>
</tr>
<tr>
<td>Teaching Assistantship</td>
<td>Free</td>
<td>~ Jun. 2019</td>
</tr>
<tr>
<td>Research project</td>
<td>Imposed by project</td>
<td>Case dependent</td>
</tr>
<tr>
<td>PhD in company</td>
<td>Imposed by company</td>
<td>None</td>
</tr>
<tr>
<td>Other (industry, own funding)</td>
<td>Free</td>
<td>Case dependent</td>
</tr>
</tbody>
</table>
How does it work abroad?

Belgium

Same as ULiege

Abroad

• Often similar to Belgium
• Master thesis is a good entrance door
• Check university website
• Contact potential advisor for availability
• Talk to faculty members at ULiege

USA

• Start application **1 year before** PhD start (deadline in the Fall)
• Need TOEFL + GRE
• Application fee
• Qualification exam (“quals”)
What are the next steps?

1. **Talk** to faculty members and other PhD students about **opportunities** and experiences

2. **Identify** potential **topic** that interests you and **advisor** with whom you would like to work

3. **Discuss** directly with your future advisor about concrete steps to take and funding options
Where can I find more information?

ULiege
- Réseau des doctorants ULiege [www.red.ulg.ac.be](www.red.ulg.ac.be)
- Pars-en-thèse [www.ulg.ac.be/books/pars-en-these](www.ulg.ac.be/books/pars-en-these)

Belgium
- FNRS [www.frs-fnrs.be/](www.frs-fnrs.be/)
- doctorat.be [www.doctorat.be](www.doctorat.be)

Abroad
- Wallonie - Bruxelles International [www.wbi.be](www.wbi.be)
- The Belgian American Educational Foundation [www.baef.be](www.baef.be)
- Euraxess [www.euraxess.be](www.euraxess.be)
- Fulbright commission [www.fulbright.be](www.fulbright.be)
- Agence universitaire de la francophonie [www.auf.org](www.auf.org)
- phdportal [www.phdportal.eu](www.phdportal.eu)
- FindAPhD [www.findaphd.com](www.findaphd.com)

Fun
- PhD comics [www.phdcomics.com](www.phdcomics.com)
Questions?

YOU MEAN TO TELL ME THAT YOU HAVEN'T DONE ANYTHING ALL SUMMER??

I OUGHT TO...

brrring!

HOLD ON.

UH HUH.

UH HUH.

NO NO, CHANNEL THE MONEY THROUGH THE DISCRETIONARY FUND.

ALLRIGHT.

SORRY ABOUT THAT. NOW, WHERE WERE WE?

UH...

WE WERE JUST WRAPPING UP?

OH.

WELL, SEE YOU NEXT WEEK THEN.

NEXT!

SOMETIMES, THEIR FORGETFULNESS HAS ITS ADVANTAGES.

www.phdcomics.com
Outline

• The PhD in general
• Practical aspects about the PhD

• Testimony from the industry
• Posters and informal discussion
Testimony

Philippe GUEUZAINÉ

Emeline GEORGES
Outline

• The PhD in general
• Practical aspects about the PhD
• Testimony from the industry

• Posters and informal discussion
BACKUP
Doctoral colleges

Architecture, Civil engineering and Geology
President: F. Nguyen
Vice-President: B. Dewals

Art of building and urban planning
President: S. Jancart
Vice-President: P. Leclercq

Aerospace Engineering and Mechanics
President: J.-P. Ponthot
Vice-President: L. Noels

Chemical Engineering
President: B. Heinrichs
Vice-President: A. Léonard

Electricity, Electronics and Computer science
President: B. Vanderheyden
Vice-President: B. Boigelot
FNRS fellowship

<table>
<thead>
<tr>
<th>Duration</th>
<th>2 years, renewable for 2 more years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic</td>
<td>Free to chose with advisor agreement</td>
</tr>
<tr>
<td>Requirements</td>
<td>Very good track record and very good project</td>
</tr>
<tr>
<td>Decision criteria</td>
<td>Application (grades, recommendation, project)</td>
</tr>
</tbody>
</table>
FRIA fellowship

Duration: 27 months, renewable for 21 more months (total of 4 years)

Topic: Free topic (industrial/agricultural application) (letter of support from industry helpful)

Requirements:
- Master in Sciences or Engineering
- Good track record and project

Decision criteria:
- Application (grades, recommendation, project)
- Oral presentation and interview

Teaching assistantship

Duration
2 years, renewable twice (total of 6 years)

Topic
Free to choose with advisor agreement

Requirements
• Good track record
• PhD advisor support

Decision criteria
Application (grades, recommendation, topic, letter of motivation, needs)

Deadline
Research project

- **Duration**: Project dependent
- **Topic**: Imposed by project (some freedom)
- **Requirements**: PhD advisor support + project available
- **Decision criteria**: PhD advisor agreement
- **Deadline**: None (start depends on project)
<table>
<thead>
<tr>
<th>Duration</th>
<th>4 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic</td>
<td>Imposed by company</td>
</tr>
<tr>
<td>Requirements</td>
<td>Be hired by company + project approval</td>
</tr>
<tr>
<td>Decision criteria</td>
<td>Project approval by Walloon region</td>
</tr>
<tr>
<td>Deadline</td>
<td>None</td>
</tr>
</tbody>
</table>

* Doctorat en entreprise