



# Co-Directed PhD

in Civil Engineering

University of Minnesota and Ecole Polytechnique

Mini Pages



## PROGRAM

This co-directed Ph.D. program between the University of Minnesota (UMN) and Ecole Polytechnique (EP), France, aims to strengthen the graduate education of partner institutions through a groundbreaking, transatlantic mode of academic training. The program was established in 2008.



## ESSENTIALS

Every Ph.D. student enrolled in the Program has two advisers, one from the UMN and the other from EP, and approximately splits his or her time between the two institutions. This novel mode of graduate education, that builds on a recent inter-European model, leads to a single PhD degree that is jointly conferred by both universities. The expected program duration is 3 years.



## SUPPORT

All students admitted to the program are supported by a combination of research assistantships and fellowships for the duration of their studies.

## SCIENTIFIC FOCUS

This program focuses on, and entails research in, the general area of solid mechanics. A strong background in continuum mechanics and mathematics is mandatory for all applicants.

## Ecole Polytechnique



## University of Minnesota



## MORE TO KNOW

**PARTICIPATING UNITS.** The co-advised Ph.D. program in Civil Engineering involves a single unit from the UMN's College of Science and Engineering, namely the Department of Civil Engineering ([www.ce.umn.edu](http://www.ce.umn.edu)), and a single unit from Ecole Polytechnique, the Solid Mechanics Laboratory ([www.lms.polytechnique.fr](http://www.lms.polytechnique.fr)).

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## Background and history of the program

### BACKGROUND

Over the past twenty years, European countries have made strides toward harmonizing the architecture of their higher education system. Spurred by an establishment of the ERASMUS program in 1987 as a means to support the academic mobility of higher education students and faculty within the European Union, education ministers of France, UK, Italy, and Germany signed the Sorbonne Declaration in 1998 committing themselves to a common academic degree structure. This agreement was followed by the Bologna Accords in 1999, signed by 29 European countries with intent to create the European higher education area by making academic degree standards more comparable and compatible throughout Europe. Of the key items of the Bologna Accords states that "there will also be a greater convergence between the U.S. and Europe as European higher education adopts aspects of the American system"



### COLLABORATION

The Civil Engineering faculty at the UMN, most notably those from the Department's Geomechanics group, have a long and fruitful tradition of collaboration with EP dating back to the 1990's. This interaction has resulted in approximately a dozen undergraduate interns from EP studying at the UMN, numerous joint journal publications, and a number of visiting professorship appointments. In 2008, this synergy culminated in the establishment of the co-directed PhD program in Civil Engineering between the UMN's Department of Civil Engineering and the EP's Solid Mechanics Laboratory (LMS). The first student was enrolled into the program immediately after its inception, in September 2008.



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## PURPOSES OF THE PROGRAM



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The key objective of the co-directed PhD program is to recruit and educate future international leaders in civil engineering. More specifically, this program aims to:

- \* Recruit top national and international graduate students
- \* Educate an elite workforce of scholars/researchers prepared for the leadership in modern, globalized and increasingly complex societies with the most demanding qualification needs
- \* Enhance international visibility and strengthen the reputation of partner institutions
- \* Forge a long-lasting relationship between two leading academic institutions



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## ELIGIBILITY REQUIREMENTS

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The admission requirements for students applying to the Program are the same as those for students applying for a "regular" PhD degree in the Department of Civil Engineering, with an additional requirement that all applicants to the co-directed Ph.D. program must have a master's degree in a related area. Note that the above eligibility requirements for entering the Ph.D. program encompass those by Ecole Polytechnique (see [www.ecoledoctorale.polytechnique.fr/index.php](http://www.ecoledoctorale.polytechnique.fr/index.php)) that normally requires a previously-earned master's degree for entering the PhD program.



### LANGUAGE PROFICIENCY REQUIREMENTS

The Graduate School at EP does not have any formal French proficiency requirement (e.g. for foreign applicants) in the application process. The co-directed Ph.D. program will be conducted in English, and the proficiency in English will be ensured by the existing UMN operational standards (in terms of TOEFL scores) for admission to the Graduate School. The only EP language requirement is that the Ph.D. thesis, when written in English, be accompanied with an extended summary in French. In general, the co-adviser from EP will provide help with the latter for co-directed students that are not proficient in French.



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[Mini Pages](#)



## CONTACT US

Your name

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For queries about applying to the program or any other questions, please contact Bojan Guzina (UMN) and Marc Bonnet (EP) by sending us a brief message.

Marc Bonnet: [bonnet@lms.polytechnique.fr](mailto:bonnet@lms.polytechnique.fr)

Bojan Guzina: [guzina@wave.ce.umn.edu](mailto:guzina@wave.ce.umn.edu)



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[Mini Pages](#)

## PARTICIPATING FACULTY

### CIVIL ENGINEERING @ UMN

- Steven Crouch, [www.ce.umn.edu/people/faculty/crouch/](http://www.ce.umn.edu/people/faculty/crouch/)
- Emmanuel Detournay, [www.ce.umn.edu/people/faculty/detournay/](http://www.ce.umn.edu/people/faculty/detournay/)
- Bojan Guzina, [www.ce.umn.edu/people/faculty/guzina/](http://www.ce.umn.edu/people/faculty/guzina/)
- Sonia Mogilevskaya, [www.ce.umn.edu/people/faculty/mogilevs/](http://www.ce.umn.edu/people/faculty/mogilevs/)

### SOLID MECHANICS @ EP

- Marc Bonnet, [www.lms.polytechnique.fr/users/bonnet/index.html](http://www.lms.polytechnique.fr/users/bonnet/index.html)
- Andrei Constantinescu, [www.lms.polytechnique.fr/users/constantinescu/index.html](http://www.lms.polytechnique.fr/users/constantinescu/index.html)
- Lev Truskinovsky, [trusk@lms.polytechnique.fr](mailto:trusk@lms.polytechnique.fr)



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