



INFORMATICS EDUCATION IN EUROPE:

Institutions, degrees, students,
positions, salaries.

Key Data 2010-2015



Cristina Pereira

**Informatics Education in Europe:
Institutions, Degrees, Students,
Positions, Salaries. Key Data 2010-2015**

An Informatics Europe Report

Informatics Education in Europe: Institutions, Degrees, Students, Positions, Salaries. Key Data 2010-2015

October, 2016

Published by:

Informatics Europe
Sumatrastrasse 25
8006 Zurich, Switzerland
www.informatics-europe.org
administration@informatics-europe.org

© Informatics Europe, 2016

ISBN: 978-3-033-05943-6

Other Informatics Europe Reports

- *Informatics Education in Europe: Institutions, Degrees, Students, Positions, Salaries. Key Data 2009-2014* (2015, Cristina Pereira)
- *Informatics Education in Europe: Institutions, Degrees, Students, Positions, Salaries. Key Data 2008-2013* (2014, Cristina Pereira, Bertrand Meyer, Enrico Nardelli, Hanne Werthner)
- *Informatics Education in Europe: Institutions, Degrees, Students, Positions, Salaries. Key Data 2008-2012* (2013, Cristina Pereira and Bertrand Meyer)
- *Informatics Doctorates in Europe - Some Facts and Figures* (2013, ed. Manfred Nagl)
- *Informatics Education in Europe: Europe Cannot Afford to Miss the Boat* (2013, joint report with ACM Europe, ed. Walter Gander)
- *The Role and Relevance of Experimentation in Informatics* (2013, eds. Jan van Leeuwen and Viola Schiaffonati)
- *Research Evaluation for Computer Science* (2008, eds. Bertrand Meyer, Christine Choppy, Jan van Leeuwen and Jørgen Staunstrup)
- *Student Enrollment and Image of the Informatics Discipline* (2007, eds. Jan van Leeuwen and Letizia Tanca)

All these reports can be obtained from Informatics Europe at:

www.informatics-europe.org

ABOUT THIS REPORT

The publication in 2013 of the first Key Data Report on Informatics Education in Europe, covering the 2008-2012 period, was a milestone event. For the first time, policy makers, education and research professionals and the general public could obtain precise information on the state of education in the area of highest importance for the future of Europe: Information Science and Technology. Instead of relying on rumors and guesses, discussions and decisions could now take advantage of verified data on the key parameters in various countries, beginning with the exhaustive list of institutions offering education in the field and continuing with a precise description of the degrees offered, the student and graduates numbers at every level, with distribution by gender, the maze of faculty and researcher positions and titles, and the most controversial topic of all: faculty and researcher salaries. Encouraged by the community's enthusiastic reception, we have continued, updated and improved the work, enlarging its scope and coverage, producing every year, since 2013, an annual edition of this report.

Like its predecessors, this report, the fourth edition of the series, emanates not from a government body or a group with a specific political agenda, but from academics in the field, represented by Informatics Europe (the association of academic and industrial research institutions in Computer and Information Sciences), with the sole purpose of furthering the understanding of the discipline's parameters through the provision of basic, factual data.

Informatics Education in Europe: Institutions, Degrees, Students, Positions, Salaries. Key Data 2010-2015 provides an impressive picture of the state of Informatics education in Europe today. Based on an enormous amount of information from representative countries, it presents a wealth of fundamental data, starting from a list of institutions awarding degrees in the field and continuing with student enrollments, degrees awarded, gender information, academic titles, as well as precise and much-needed data about academic salaries across European countries.

This fourth edition has added a number of countries to those already covered. Thanks to the active participation of new collaborators, acknowledged below, the report now covers Belgium, Estonia, and Romania in addition to the countries in the previous edition (Austria, Denmark, Germany, Greece, Ireland, Italy, Latvia, The Netherlands, Spain, Switzerland, UK, and France for salaries).

The Informatics Key Data report series will continue to provide the community with the precise and objective information that is indispensable for understanding the field and making informed, effective policy decisions.

***Disclaimer:** All facts and figures were obtained from publicly available sources. Although extreme care has been taken to ensure the data of interest was correctly extracted from these sources we give no warranty, express or implied, as to the accuracy, reliability, utility or completeness of this information. The reader assumes all risks and is solely responsible for any conclusions drawn from the information portrayed in this report as well as for the use of the data presented. Please report any incomplete or erroneous data to administration@informatics-europe.org.*

***Acknowledgements:** Clarissa Schmid, Gerald Steinhardt, Hannes Werthner (Austria); Kim Mens (Belgium, Wallonia and Flanders); Jens Christian Godskesen (Denmark); Margit Grauen, Piret Orav (Estonia); Antoine Petit (France); Hans-Ulrich Heiss (Germany); Panagiota Fatourou, Eleni Kanellou, Chrysti Symeonidou, Vasileios Theodosiadis (Greece); Colm O'Riordan, Stefan Decker, Alan Smeaton (Ireland); Enrico Nardelli & Carlo Ghezzi (Italy); Juris Borzovs (Latvia); Erik Barendsen & Jan van Leeuwen (The Netherlands); Simona Motogna (Romania); NÚria Castell Ariño (Spain); Jane Hillston, Neil McGillivray, Pim Totterdell & Paul Martin (UK): for invaluable help in obtaining and interpreting country-specific data. Bertrand Meyer, for invaluable contribution in the writing of the previous editions. Mehdi Jazayeri for proofreading and comments on this edition.*

Table of Contents

EXECUTIVE SUMMARY	3
1 INTRODUCTION	4
2 SOURCES OF DATA	5
2.1 METHODOLOGY	5
2.2 DATA SOURCES FOR SUBJECTS, STUDENT ENROLLMENTS, DEGREES AND INSTITUTIONS	5
2.3 DATA SOURCES FOR SALARIES	6
2.4 A GENERAL WARNING	6
3 NAMES OF SUBJECTS	7
4 SYSTEMS OF HIGHER EDUCATION	10
4.1 AUSTRIA	10
4.2 BELGIUM	11
4.3 DENMARK	13
4.4 ESTONIA	14
4.5 FRANCE	15
4.6 GERMANY	16
4.7 GREECE	17
4.8 IRELAND	18
4.9 ITALY	19
4.10 LATVIA	20
4.11 THE NETHERLANDS	21
4.12 ROMANIA	23
4.13 SPAIN	23
4.14 SWITZERLAND	25
4.15 UK	26
5 STUDENT ENROLLMENTS	29
5.1 FIRST YEAR STUDENTS	30
5.2 BACHELOR STUDENTS	34
5.4 TENTATIVE EXTRAPOLATION TO THE WHOLE OF EUROPE	41
6 DEGREES	42
6.1 BACHELOR'S DEGREES	42
6.2 MASTER'S DEGREES	45
6.3 DOCTORAL DEGREES	48
6.4 RATIO BACHELOR GRADUATES/NEW STUDENTS	51
6.5 TENTATIVE EXTRAPOLATION TO THE WHOLE OF EUROPE	53
6.6 RELATIONSHIP BETWEEN SUPPLY AND DEMAND	53
7 POSITIONS AND TITLES	54
7.1 A BASIS FOR MULTINATIONAL COMPARISON OF ACADEMIC POSITIONS	54
7.2 AUSTRIA	56
7.3 BELGIUM	56
7.4 ESTONIA	57
7.5 FRANCE	57
7.6 GERMANY	58
7.7 GREECE	58
7.8 ITALY	59
7.9 LATVIA	60
7.10 THE NETHERLANDS	60
7.11 ROMANIA	61
7.12 SPAIN	61
7.13 SWITZERLAND	62
7.14 UK	62
8 SALARIES	64
8.1 SALARIES: OVERVIEW	64
8.2 SALARIES: PHD CANDIDATES AND POSTDOCTORAL RESEARCHERS	64
8.3 SALARIES: PROFESSORS	69
9 CONCLUSION AND OUTLOOK	77
APPENDIX A: INSTITUTIONS	78
APPENDIX B: SALARY TABLES	103
APPENDIX C: REFERENCES AND SOURCES CONSULTED	118

Executive Summary

Informatics, the science behind Information Technology (IT), is a core enabler of Europe's future success. Crucial to that success is the availability of superb Information and Computer Sciences education throughout Europe.

In this report series, the first to attempt a general study of the state of the art in European Informatics higher education, the emphasis is on raw facts and figures rather than deep analysis; it provides the material for such analyses that others may wish to perform. Nevertheless, a number of salient points emerge:

- The field in Europe suffers from a **serious branding problem**. Even after an approximate translation to English, a good dozen terms are used to denote what is fundamentally the same discipline.
- The quantity and quality of available data varies considerably from country to country. In the interest of reliability, this report has mostly used data from countries where a solid and reasonably complete picture could be drawn from official sources. Even when available, the data does not always allow direct comparisons, since definitions and methods of collection vary significantly from country to country. It is very important for the field to ensure that **consistent, solid Informatics education data becomes available in all European countries**.
- Informatics is a well-developed academic field, with **hundreds of accredited institutions** training huge numbers of students for bachelor, master and PhD degrees.
- Extrapolating from precise data in specific countries, we come to a rough estimate that:
 - more than two hundred and fifty thousand new students enroll each year in an Informatics Bachelor program in Europe.
 - overall close to a million students are enrolled in Informatics bachelor's programs across Europe; the corresponding estimated figure for master students is close to two hundred thousand.
 - more than a hundred thousand students graduate each year in an Informatics Bachelor program in Europe; the corresponding estimated figure for master graduates is close to fifty thousand.
- **Female students are strongly underrepresented in Informatics studies in Europe. At the bachelor level, in all countries included in this report, excluding Romania, Greece and Estonia, 80% or more of the students enrolled or graduating in Informatics bachelor programs are male.** At the master level, female participation increases in some countries, but decreases in others; only in Romania, Greece, Estonia, Denmark, Ireland Latvia and the UK female participation in master studies exceeds 20%. No significant progress in female participation is observed over the past six years.
- In almost all countries included in this report **the number of students graduating every year is less than half of the number of new enrolled students**. Students in Informatics are either taking an unusually long time to conclude their studies successfully or not concluding them at all. We don't know how completion rates compare with other disciplines.
- The **status of faculty** varies considerably across Europe. **The salaries vary even more**. Our detailed study of the salaries of faculty in twelve European countries **shows, for a similar faculty position, a difference in salaries that can reach a factor of ten or more**. For example, a full professor at the top level receives, in some countries, the salary of a high-level industry executive, whereas in others the compensation is more comparable to that of a junior engineer in the IT industry.

ISBN 978-3-033-05943-6



9 783033 059436 >

www.informatics-europe.org
© Informatics Europe, 2016

