Erasmus Mundus Master Course in
Chemical Innovation and Regulation

Annual Report 2016

for the Programme Committee

UAlg
UNIVERSIDADE DO ALGARVE

UNIVERSITAT DE BARCELONA

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

HERIOT WATT UNIVERSITY

Co-funded by the
Erasmus+ Programme
of the European Union

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Summary

This report summarizes the results of the EMMC-ChIR programme to be presented to the Programme Committee. The Programme Committee is the highest management structure in the organization of the EMMC-ChIR project. It includes representatives of the partner Universities, of the students, the lecturers, the research supervisors, and representatives of the chemical industry and regulatory bodies, as course external stakeholders.

The report provides a brief description of the project and of its results in the previous editions. It is intended to be the basis for the discussion and approval of the list of modules and research topics for the next edition of the course.

The present report provides information on the ongoing 2nd and 3rd editions and on the selected students for the 4th edition hosted by the University of Algarve.

1. Introduction

What is the EMMC-ChIR?

The EMMC ChIR - Erasmus Mundus Master in Chemical Innovation and Regulation - is a MSc providing professionals with all the tools and knowledge needed from the scientific, the regulatory and the economic point of view to manage the risks of chemicals responsibly and to meet responsibilities over chemical legislation worldwide.

The EMMC-ChIR was created in 2012 as a Joint Degree by the ChIR Consortium of European Universities. As a Joint Degree offered by the ChIR Consortium, it benefits from a much larger offer of contents and facilities than would be possible in a single university. As an Erasmus Mundus project, ChIR also aims to promote research and collaboration in the EHEA supporting the implementation of chemical safety regulations.

Detailed information is available at www.emmcchir.org .

Who are the partners?

The EMMC-ChIR is managed by the consortium of University of Algarve (UAlg), University of Barcelona (UB), University of Bologna (UniBo) and Heriot-Watt University (HWU). The UAlg coordinates the project in its first five years, 2013-2018.

In addition to the Full Partner universities above, the project involves Associated Partners. The roles of the academic and non-academic associated partners include one or more of the following:

(i) promoting the course among potentially interested companies and individuals;

(ii) contributing to the self-evaluation and improvement of the course;

(iii) hosting students for part of their research theses.

The following entities currently contribute to the EMMC-ChIR project as associated partners:

- NILU - Norsk Institutt for Luftorskning (Norway), www.nilo.no
- CQE - Centro de Química Estrutural (Portugal), http://cqe.ist.utl.pt/
- CIQA - Centro de Investigação em Química do Algarve (Portugal), http://www.ciqa.ualg.pt/
- CBME - Centro de Biomedicina Molecular e Estrutural (Portugal), http://www.cbme.ualg.pt/
- USP - Universidade de São Paulo (Brazil)
- CSU - Central South University (China), http://www.csu.edu.cn
- HNU - Holy Names University (USA), http://www.hnu.edu/
- Lab*S - Red Espanola de Laboratorios Sostenibles (Spain), http://www.fundacionmaite.org/labs
- GRISC - Governance Risk Research Center (Spain), www.grisc.cat
- SEQUI - Sociedade Espanola de Quimica Industrial e Ingenieria Quimica (Spain), www.sequi.es
- SPQ - Sociedade Portuguesa de Química (Portugal), www.spq.pt
- VALAGRO S.p.A (Italy), www.valagro.com
- CEFIC - European Chemical Industry Council - (Belgium) (awaits agreement of cooperation)
- ECHA - European Chemicals Agency (Finland) (EMMC-ChIR is included in ECHA's graduate Scheme)

In July 2013 the following institutions were proposed to join the Consortium as Associated Partners:

Universities:

- Hokkaido University (Japan)
- University of Pune (India)
- Mahatma Ghandi University (India)
- Universidade do Estado do Rio de Janeiro (Brazil)
- Universidade Federal do Rio Grande (Brazil)
- Clemson University, South Carolina (USA)

Research centers:

RAIZ - Instituto de Investigação da Floresta e do Papel (Portugal)

Companies:

Repsol (Spain)

Associations:

APEQ - Associação Portuguesa de Empresas Químicas (Portugal)

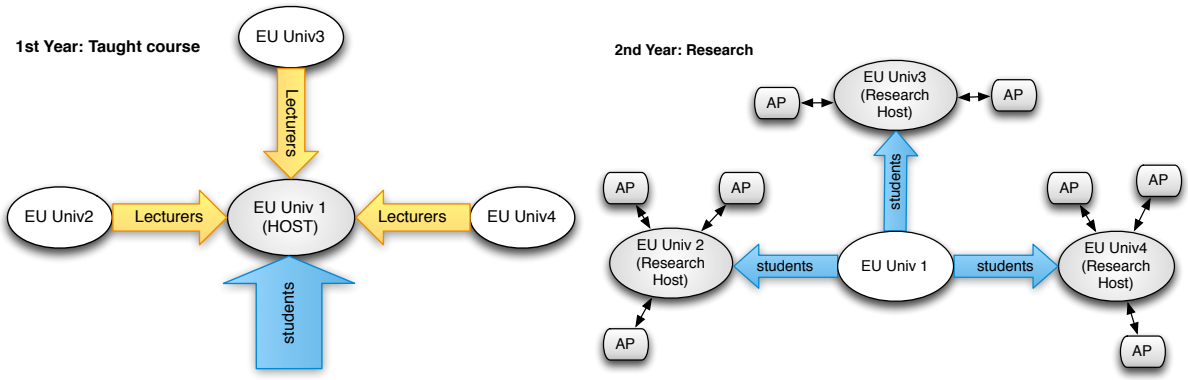
AIPQR - Associação das Indústrias da Petroquímica, Química e de Refinação (Portugal)

New associated partners from stakeholders of EMMC-ChIR are welcome. New associated partners are proposed and approved annually in the meeting of the Programme Committee.

Structure

The Masters course has a duration of 2 years for a total of 120 ECTS credits. There are two main components: first, a fully integrated taught (Curricular) part of 60 ECTS credits (one year); second, a research project leading to a thesis dissertation of 60 ECTS credits (one year). The course is hosted in turn at the European Universities in subsequent years.

The research may take place in any of the other European Universities of the Consortium, and may be shared with associated partners (AP).



The host universities for the curricular year have been:

Edition	Academic Year	Host University
1st	2013 / 2014	UAlg
2nd	2014 / 2015	UB
3rd	2015 / 2016	UniBo

The Host university for the next edition will be the UAlg.

Contents

Staff dealing with the regulation of chemicals need an integrated, interdisciplinary view of the lifecycle of chemical substances: the **Design**, including the most recent technology for the production of alternative materials; the **Industry**, including a solid understanding of the current economy of the chemical industry and the requirements for implementation of new processes; the **Market**, including understanding the social perception of the risk of chemicals; the **Assessment**, including a deep understanding of the mechanisms of environmental and human toxicity of chemicals and of the most advanced techniques to evaluate it; and the **Regulation**, including a thorough knowledge of European and non-European legislation related to the use of chemicals.

The EMMC ChIR covers these five fields essential to understand chemical regulation. As such, the course is organized into five large disciplines, within which a number of stand-alone modules is offered:

D - Design
I - Industry
M - Market
A - Assessment
R - Regulation

Students can build a tailored study plan by choosing modules to complete each discipline. All modules are optional and students may choose them freely, provided they take a minimum of 3 modules from each discipline and that their choices fulfill all the General Learning Outcomes of the course.

The same modules are not necessarily offered every year, but a sufficient number and variety is offered to allow the completion of the General Learning Outcomes.

The list of modules is proposed every year by the Programme Management Team and approved by the Programme Committee.

Project Management

Programme Coordinator: Isabel Cavaco (UAlg)

Programme Director 2013/14: Isabel Cavaco (UAlg)

Programme Director 2014/15: Daniel Sainz (UB)

Programme Director 2015/16: Emilio Tagliavini (UniBo)

Programme Director 2016/17: Ana Rosa Garcia (UAlg)

Co-Directors in 2016/2017: Isabel Cavaco (UAlg), Vera Marques (UAlg)

Programme Management Team:

Isabel Cavaco (UAlg)
Daniel Sainz (UB)
Emilio Tagliavini (UniBo)
Teresa Fernandes (HWU)

Selection Committee:

Isabel Cavaco (UAlg)
Ana Rosa Garcia (UAlg)
Daniel Sainz (UB)
Emilio Tagliavini (UniBo)
Paola Galletti (UniBo)
Teresa Fernandes (HWU)
Helinor Johnston (HWU)

Examiners Board:

Daniel Sainz (UB)
Emilio Tagliavini (UniBo)
Ana Rosa Garcia (UAlg)
Teresa Fernandes (HWU)

External Examiners:

Alice Newton (UAlg)
Isabel Pérez (Lab*S)

Administrative Assistants:

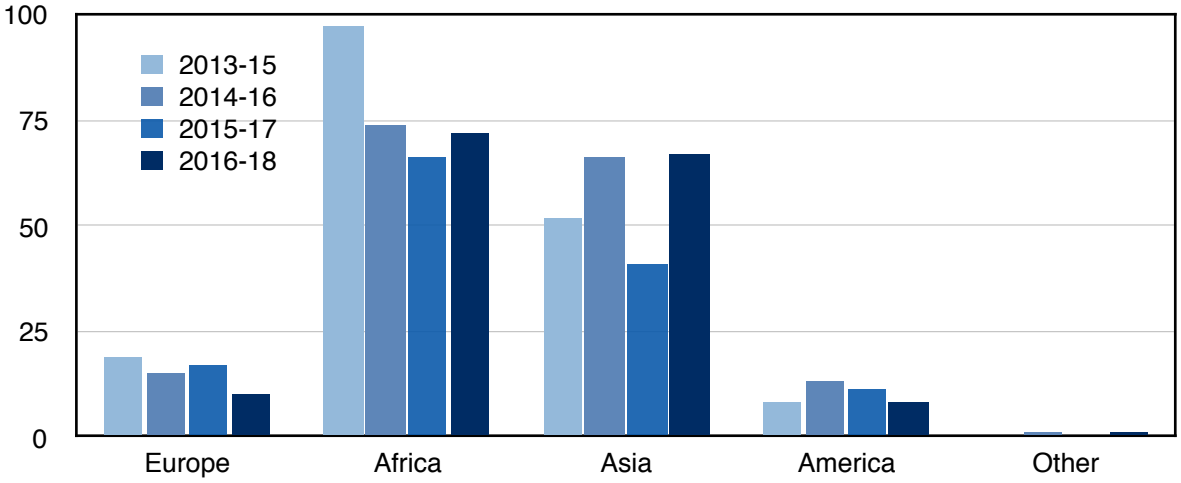
Nataliya Butenko (UAlg)
Enrika Vaitelaviciute (UniBo)

2. Candidates

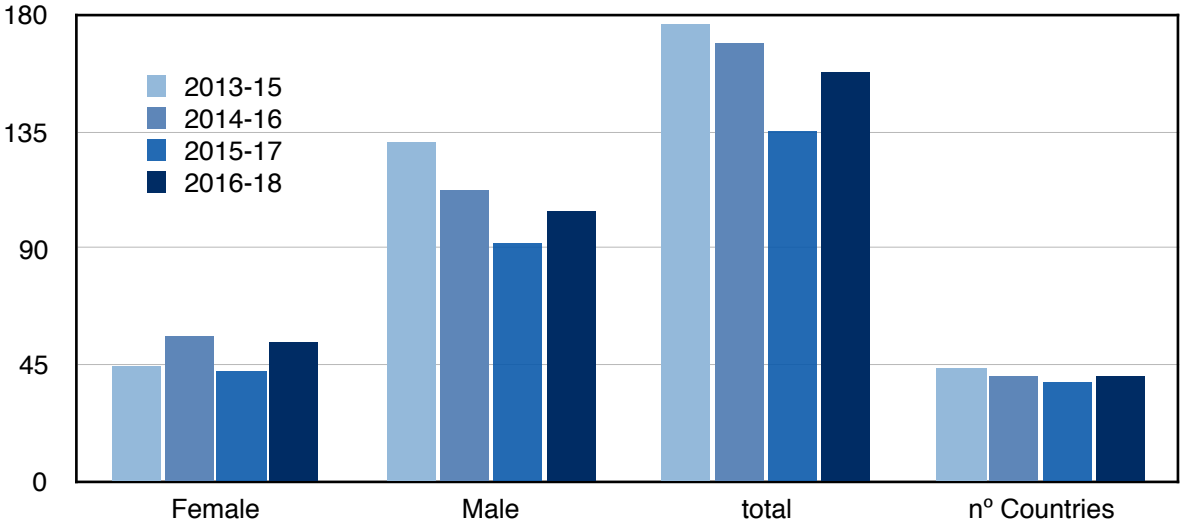
Student Applications

The EMMC-ChIR has received every year 200-400 online applications, of which 130-180 are complete applications. Candidates apply from 40-45 countries distributed all over the world. The majority of candidates apply from Africa, followed by Asia, Europe and the Americas (Graphic 1).

Graphic 1 - Evolution of the number of candidates, by world region



Evolution of the number of candidates, by gender



Erasmus Mundus Student Applications 2016

The European Commission provides, each year, a limited number (n) of Erasmus Mundus grants. The n top ranked candidates are selected for the main list of candidates. Restrictions on geographical and gender balance apply. Geographical balance is imposed by the European Commission to a maximum of 3 candidates from the same country in the main list of Erasmus Mundus studentship holders. Gender balance demands not less than 40% female candidates as studentship holders.

The 4th edition of the course received between November 2015 and January 2016 a total of 397 applications, from which 156 were complete. Most candidates (146, 94%) applying for Erasmus Mundus grants are from Partner countries and only 10 (6%) are Europeans or candidates who have previously lived in Europe. Applications for self-funded students are open until September 2016, and the number of EU candidates is expected to increase. Figure 1 represents the current geographical distribution of candidates.

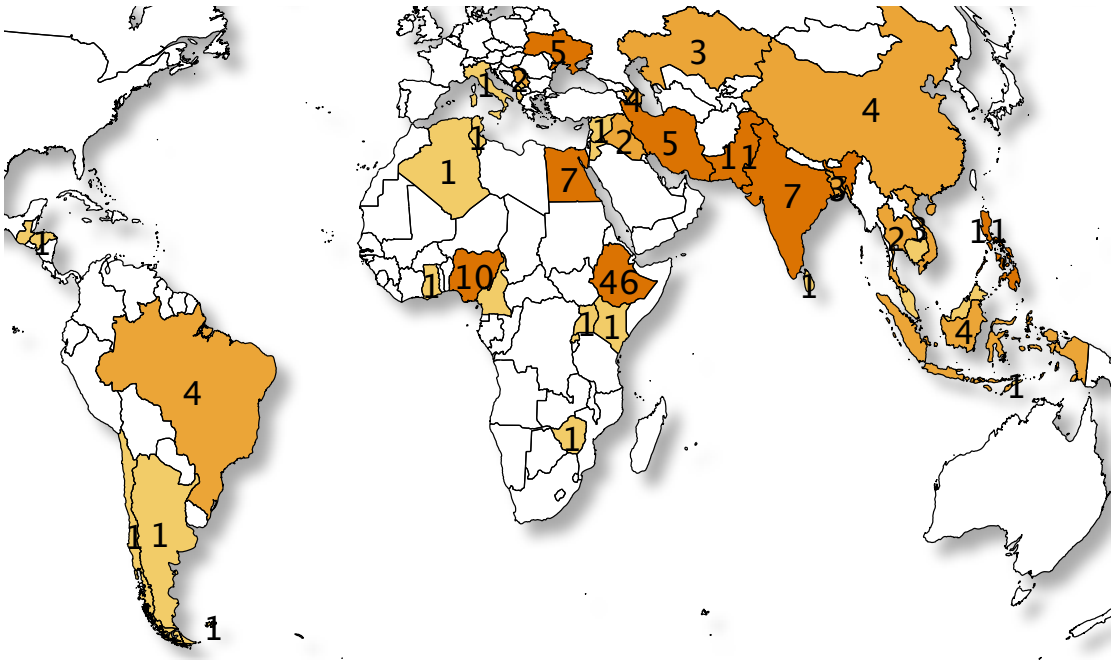


Figure 1 *- Geographical Distribution of Erasmus Mundus candidates for ChIR 2016-2018*

The 8 top ranked candidates from Parter countries and 2 top ranked from Programme countries fulfilling geographical and gender balance received Erasmus Mundus grants. One candidate declined the grant and was replaced by the next one on the reserve list. In additional six additional windows of funding were provided by the European Commission to fund candidates coming from specific regions of the world: ENI-South; Central Asia, Middle

East, Iran, Latin America and ACP. Figure 2 represents the geographical distribution of grant-holder candidates.

Gender distribution among candidates was skewed towards male candidates, with only 34% female candidates. Once again, this is due to the Ethiopia candidates contribution (29% of completed applications), which are almost exclusively male. Comparing with the previous editions candidates, there are 8% more female completed applications than the 1st edition and the same percentage as the 2nd and 3rd editions. Figure 3 represents the gender distribution for all the candidates.

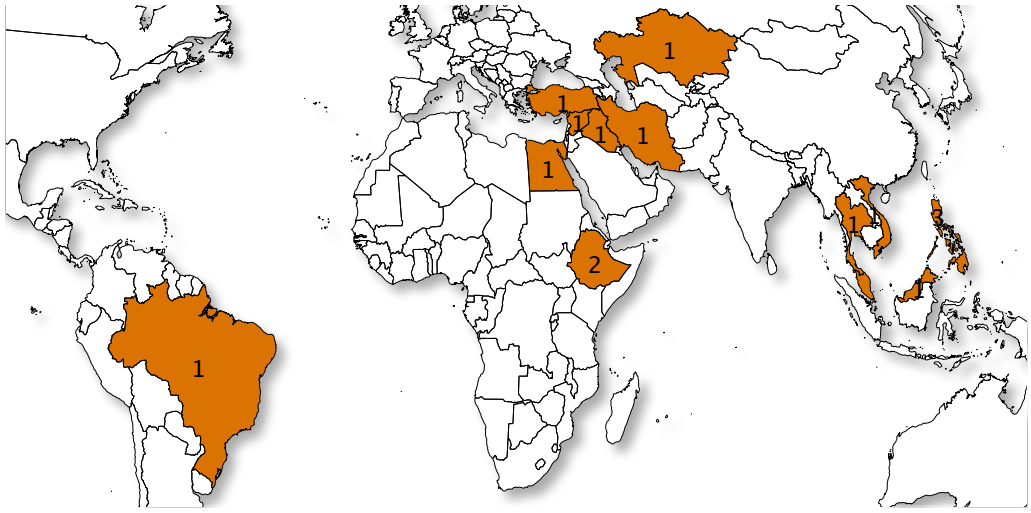


Figure 2 *- Geographical Distribution of Erasmus Mundus students selected for ChIR 2016-2018 main list.*

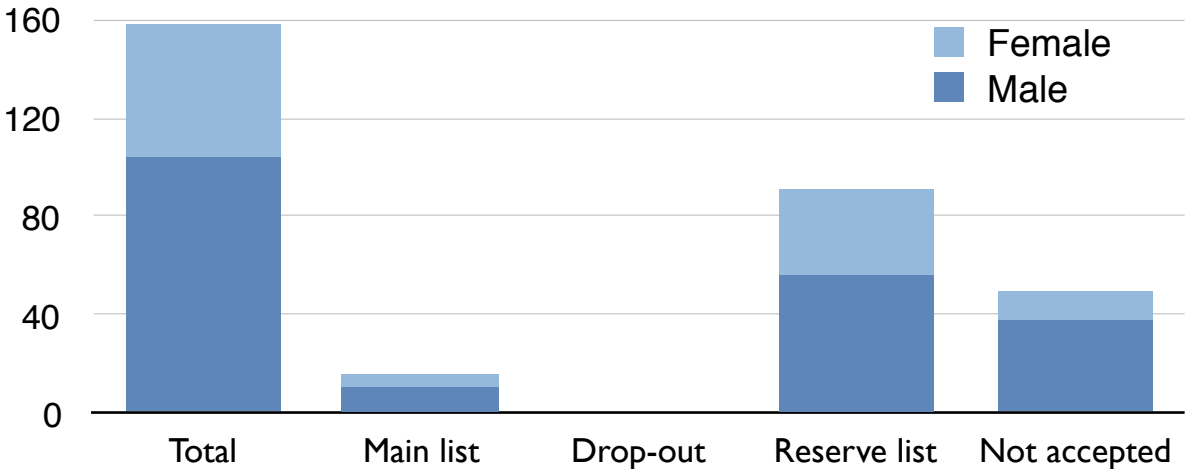
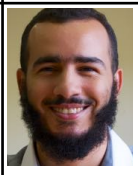
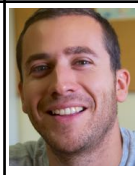
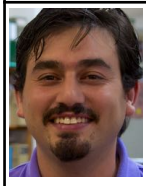
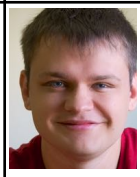
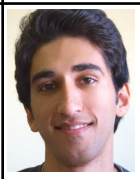


Figure 3 *- Gender Distribution of Erasmus Mundus candidates for ChIR 2016-2018:* ***Total*** *number of candidates, Candidates selected for the* ***Main List****, Candidates declining the studentship (****drop-out****), candidates in the* ***reserve list*** *and candidates* ***not accepted*** *to the course.*

3. Students

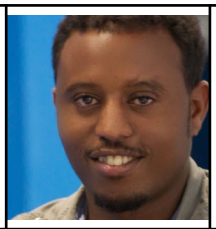
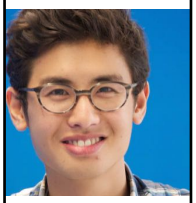
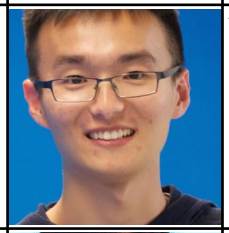
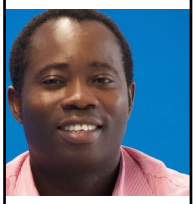
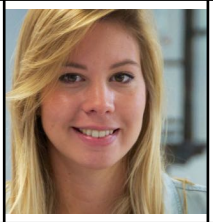
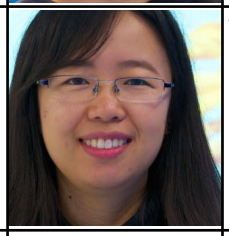
Students 2013-2015

In its first edition the EMMC-ChIR received 17 students, all Erasmus Mundus grant-holders. All but one completed the first year of classes at the University of Algarve.

	Antoine Karengera (Rwanda) Pharmaceutical Sciences Research: **UB and UAlg** Current position: **PhD student, Wageningen University (Netherlands)**		Jagadish Roy (Bangladesh) Chemical Engineering Research: **HWU** Current position: **PhD student, GEMTEX (France)**		Silvana Agostinho Martins (Portugal) Pharmaceutical Sciences dropped out
	Arsalan Afkhami (Iran) Chemical Engineering Research: **UB** Current position: **Industry Intern, Grundfos (Denmark)**		Kateryna Vengel (Ukraine) Chemistry Research: **UB** Current position: **Quality Assurance/R&D, Galenicum Health Company. (Spain)**		Sohaib Mahri (Algeria) Pharmacy Research: **HWU** Current position:
	Emmanuel Neba Ambebia (Cameroon) Research: **UB** Current position: **Searching employment (USA)**		Maybel Monfero Nonato (Philippines) Research: **UniBo** Current position: **Department of Energy, a government agency (Philippines)**		Stavros Moschidis (Greece) Chemical Engineering Research: **HWU** Current position: **Business Analyst at Credit Suisse (UK)**
	Fabián Andrés Lara González (Chile) Chemistry&Pharmacy Research: **HWU** Current position: **Consultancy in Chemical and Pharmaceutical Regulations (Chile)**		Oleksii Shemchuk (Ukraine) Pharmaceutical Sciences Research: **UniBo** and **UAlg** Current position: **PhD student (UniBo, Italy)**		Tiruwork Mequanint Bezabih (Ethiopia) Analytical Chemistry Research: **HWU** Current position: **Searching employment (USA)**
	Gokhan Gulten (Turkey) Chemistry Research: **HWU** Current position: **Searching employment**		Pauline Angelic Roxas (Philippines) Chemistry Research: **UB** Current position: **Searching employment**		Victor Olusola Ajao (Nigeria) Industrial Chemistry Research: **UniBo** Current position: **PhD student, Marie Curie, Wageningen University (Netherlands)**
	Hintsa Gitet Kahsay (Ethiopia) Education in Chemistry Research: **UB** Current position: **Mekelle University, Lecturer (Ethiopia)**		Payam Alikhani (Iran) Petroleum Engineering Research: **HWU** Current position: **PhD student, Heriot-Watt University (Scotland)**		

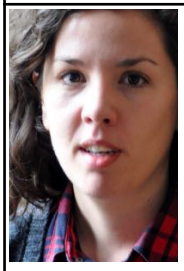
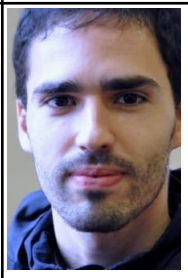
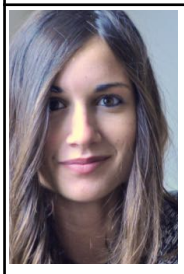
Students 2014-2016

In its second edition the EMMC-ChIR received 14 students. Thirteen Erasmus Mundus grant-holders and one self-funded students, Bethel Anucha. Isabel Navarro abandoned the course in the first semestre.

	Angelo Kenneth Romasanta (Philippines) BSc Chemistry Research: **Unibo / UAlg**		Hagos Tesfay Kidanu (Ethiopia) BSc Applied Chemistry MSc Chemistry Research: **UniBo**		Nazmiye Tugce Eran (Turkey) BSc Chemistry Research: **HWU**
	Asnake Gudisa Eded (Ethiopia) BSc Applied Chemistry MSc Environmental Sciences Research: **UAlg**		Isabel Navarro (Spain) BSc Chemistry dropped out		Paola Blair Vásquez (Costa Rica) BSc Chemical Engineering Research: **UniBo**
	Bazarsad Narmandakh (Mongolia) BSc Applied Chemistry Research: **UAlg**		Miguel Antonio Brion (Philippines) BSc Chemistry Research: **UAlg**		Yu Zhang (China) BSc Chemistry MSc Chemistry Research: **HWU**
	Chukwuka Bethel Anucha (Nigeria) BSc Chemistry Research: **UAlg**		Mireia Broch Gosser (Spain) BSc Chemistry Research: **Unibo / HWU**		Wei Wang (China) BSc Pharmacy MSc Chemistry Research: **UB / UAlg**
	Donaldben Mbagag Neba (Cameroon) BSc Biochemistry MSc Biotechnology Research: **UAlg**		Mohammad Anisur Rahman Jamil (Bangladesh) BSc Chemistry MSc Inorganic Chemistry Research: **UniBo**		

Students 2015-2017

In its third edition the EMMC-ChIR received 16 students, of which 13 were Erasmus Mundus grant-holders and 3 self-funded students: Erica Quagliarini, Diana Guile Ferrari and Jose Miguel Albahaca Oliva. Erica Quagliarini abandoned the course in the second semestre. Peggy Montazeri joined the course but, for personal reasons, left in the beginning. She was replaced by Zohre Eskandari, who joined in January 2016.

	DJ Donn Matienz (Philippines) BSc Chemical Engineering Research: **UB**		Wubshet Belay (Ethiopia) BSc Chemistry MSc Environmental Sciences Research: **UAlg**		Mulatu Yohannes Nanusha (Ethiopia) BSc Chemistry MSc Chemistry Research: **UAlg**
	Ester Carregal Romero (Spain) BSc Chemistry MSc Business Studies Research: **HWU**		Mohammad Sufian Bin Hudari (Singapore) BSc Chemistry Research: **HWU**		Diana Guillen Ferrari (Italy) BSc Chemical Engineering Research: **HWU /UAlg**
	Shella Talampas (Philippines) BSc Chemical Engineering Research: **UAlg / UB**		Yemataw Addis Alemu (Ethiopia) BSc Chemistry MSc Pharmacy Research: **UAlg**		Ana Vallejo Cortes (Mexico) BSc Pharmacy Research: **HWU**
	Loveille Jun Gonzaga (Philippines) BSc Chemical Engineering Research: **UAlg**		Jose Miguel Albahaca Oliva (Venezuela) BSc Chemistry Research: **UB**		Diego Josué Milián Izeppi (Guatemala) BSc Chemical Engineering Research: **UB**
	Erica Quagliarini (Italy) Dropped out.		Kseniia Tuholukova (Ukraine) BSc Environmental Sciences MSc Environmental Sciences Research: **UB**		Boryana Tsenkova (Bulgaria) BSc Chemistry Research: **UniBo / UAlg**
	Zohre Eskandari (Iran) BSc MSc Research: **UAlg**		Pegah Montazeri (Iran) BSc Chemistry MSc Chemistry Dropped out.		

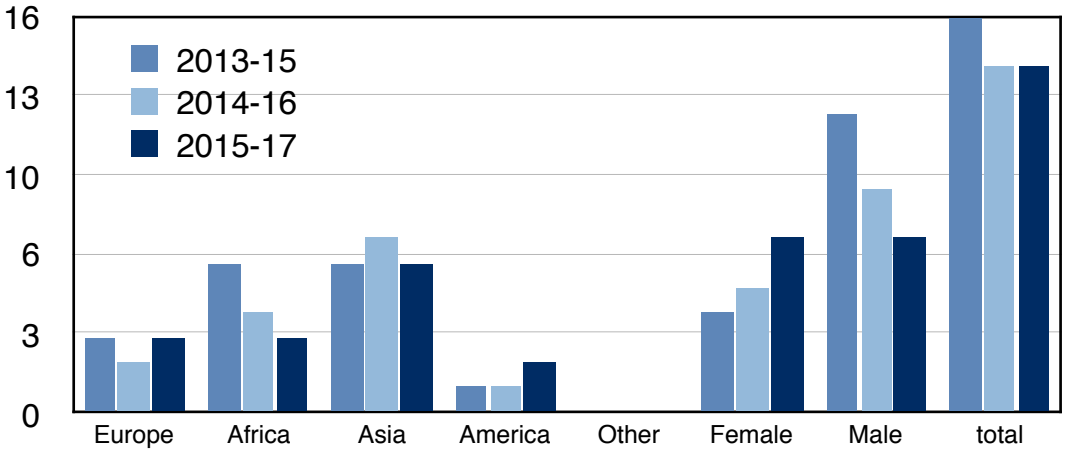
Students 2016-2018

List of Selected Erasmus Mundus Students for the 4th edition:

Name	Gender	Nationality	Background (BSc/MSc)
Danilo **Silva**	Male	Brazil	Chemical Engineering
Ahmed Abdelmoneim Abdelfattah **Mashali**	Male	Egypt	Chemistry
Dawit **Gebremichael**	Male	Ethiopia	Chemistry / Chemistry
Gidey Gebremeskel **Kidane**	Male	Ethiopia	Chemistry / Medical Sciences
Ana Ligia **Sandoval Pérez**	Female	Guatemala	Pharmacy
Seyyed Mohammadreza **Hesami**	Male	Iran	Chemical Engineering / Chemical Engineering
Basma **Raad Shakir**	Female	Iraq	Chemistry
Fadi **Al-Shnani**	Male	Jordan	Chemistry / Chemistry
Askar **Nurassilov**	Male	Kazakhstan	Chemistry
Jye Ming **Ong**	Female	Malaysia	Chemistry
Mart Benson Magboo **Castillo**	Male	Philippines	Chemical Engineering / Chemistry
Jose Albert **Cruz**	Male	Philippines	Chemical Engineering
Sharmaine **Salandanan**	Female	Philippines	Food Science and Technology
Napatr **Kunachitpimol**	Male	Thailand	Environmental Sciences
Nazan **Altun**	Female	Turkey	Chemical Engineering
Mi **Nguyen Thi Diem**	Female	Vietnam	Chemistry / Chemistry

Distribution of ChIR Students by Nationality

Graphic 2 - Number of ChIR students, by world region



4. Study Contents

List of modules offered in 2015-2016 in UniBo

A total of 68 modules were offered in the 3rd edition. Due to specific regulations of UniBo, modules were organized into larger curricular units. The curricular units were organized into 5 paths to facilitate student's choices according to their background and interests: 1 - Regulation; 2 - Health; 3 - Environment; 4 - Industrial innovation; 5 - Product Innovation. The The organization of modules into curricular units and paths followed in UniBo is presented in annex A. The following tables show only the offer of modules, without the grouping into curricular units specific to UniBo.

Six modules needed to be cancelled because they were chosen by an insufficient number of students. In addition, module T11 - Personal Branding could not be offered due to the impossibility of finding a lecturer within the available timetables. The definitive list of modules and lecturers, as well as the origin university of each lecturer, is presented in the tables below.

A - Assessment

code	Name of module	University	Name of lecturer
A01	*Environmental Assessment*		
A0101	Chemical Transformation and Degradation in the Environment	UniBo	Paola Galletti
A0102	Chemical Pollutants	UniBo	Paola Galletti
A0104	Environmental Analysis and Detection in the Environment	UniBo	Laura Tositti
A0106	Environmental and Health Safety of Nanotechnology	HWU	Teresa Fernandes
A0108	Chemical Pollutant Remediation	HWU	Thomas Aspray
A0109	Transport processes and dispersion of pollutants in the atmosphere	UniBo	Alberto Modelli
A0110	Marine Microbial Diversity and Ecology	HWU	Tony Gutierrez
A0111	Chemical and biological treatment of wastewater	UAlg	Clara Costa
A0112	Bioavailability	HWU	Ted Henry
A02	*Toxicological Assessment*		
A0204	Toxicology	HWU	Teresa Fernandes
A0206	Principles of Toxicological Assessment	UAlg	Vera Marques
A03	*General Assessment*		

A0304	Reference Materials and Laboratory Proficiency Testing Schemes	UB	Angels Sahuquillo
A0305	Measuring Variability and Statistical Decision	UAlg	Isabel Cavaco
A04	*Physical Hazard Assessment*		
A0402	Chemical Reactivity Hazards	External	Victor Garrido

D - Design

code	Name of module	University	Name of lecturer
D01	Alternative Green Products	UniBo	Emilio Tagliavini
D02	Properties of materials and new materials	UB	Mercè Segarra
D03	Patenting new products	Ualg	Lurdes Cristiano
D04	Drug design	UB	Axel Bidon-Chanal
D05	Structure Toxicity Relationship	UniBo	Assimo Maris
D07	Chemical Database	UB	Gabriel Aullón
D08	Modelling and Simulation	UB	Gabriel Aullón
D09	Food and Chemistry	UB	Carme González
D10	Soft Materials	UB	Francesc Sagués
D11	Design of Chemical formulations	UB	Santiago Esplugas
D13	Sustainable Biocatalytic Processes	UniBo	Alessandra Tolomelli
D14	Peptides and peptidomimetics as green chemistry tools	UniBo	Claudia Tomasini

I - Industry

code	Name of module	University	Name of lecturer
I01	*Sustainable Chemistry:*		
I0101	Renewable Sources	UniBo	Chiara Samorì
I0102	Green Metrics	UniBo	Marco Lombardo
I0103	Catalysis for a sustainable synthetic chemistry	UniBo	Marco Bandini
I0104	Alternative Green Solvents	UniBo	Claudio Trombini
I0105	Green Synthetic Strategies and	UniBo	Pier Giorgio Cozzi
I0108	Chiral Technology in the Chemical & Pharmaceutical Industry	UB	Albert Moyano
I02	*Chemical and fine chemical industry:*		
I0203	Pharmaceutical and Fine Chemicals Industry	UniBo	Walter Cabri
I0204	Industrial Forgery Detection	UAlg	José Moreira
I0205	Chemical Process Safety	External	Joan Padilla
I0206	Chemical Industry	UB	Emilio Tagliavini
I0207	Nanomanufactoring and Nanoprocessing	UB	Albert Romano

M - Marketing and Social

code	Name of module	University	Name of lecturer
M01	Business planning	UB	Jaume Argerich
M02	Market research	UB	Rubén Huertas
M03	Social Perception of the Chemical Risk	UB	Luca Pietrantoni
M04	Health and Safety in Chemistry	UB	Daniel Sainz
M05	Life Cycle Assessment	UniBo	Fabrizio Passarini
M06	Quality Management	UAlg	Isabel Cavaco
M07	Innovation Management	UB	Jaume Valls
M08	Biosafety	UB	Cristina Massa
M09	Entrepreneurship	UB	Jaume Argerich

R - Regulation

code	Name of module	University	Name of lecturer
R02	Risk Management	EM Scholar	Paolo Ricci
R03	REACH and CLP Regulations	External	Ruth Jimenez
R04	Non-EU Regulations: Japan, Brazil and China	UB	Daniel Sainz
R06	Pharmaceuticals Regulations	UAlg	João Rocha
R07	Nanomaterials and Nanotecnologies Regulations	HWU	Teresa Fernandes
R08	Chemical Waste Materials Regulations	External	Victor Garrido
R09	Priority Substances in EU Environmental Legislation	UAlg	Alice Newton
R10	Comparative Analysis of Chemical Regulations – US and EU	EM Scholar	Paolo Ricci
R12	introduction to EU and US law	EM Scholar	Paolo Ricci
R13	Advanced Risk Analysis	EM Scholar	Paolo Ricci
R14	Safety in the Use of Chemicals	External	Eugenia Anta

T - Transferable Skills

Transferable skills modules provide an opportunity for students to train and improve skills that are useful in a wide range of fields. A maximum of three T modules can be included in a study plan.

code	Name of module	University	Name of lecturer
T01	IT Tools	UniBo	Marco Lombardo
T02	Communication Skills	UniBo	Paola Galletti / Isabel Cavaco
T03	Laboratory Skills	UniBo	Paola Galletti
T04	Research Skills	UniBo	Giuseppe Fallini
T07	Intensive "Survival" Language Course - Italian	UniBo	Mimma Daico (CLA)

Cancelled Modules

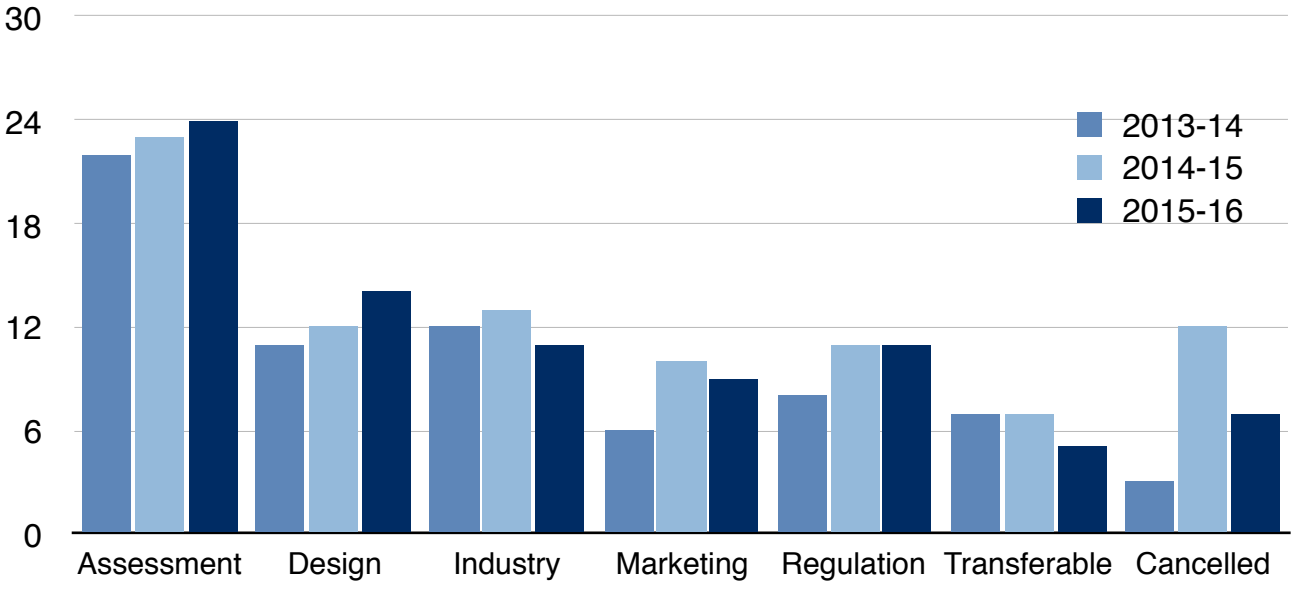
The following modules were cancelled this year:

A0201	Genotoxicity Assessment
A0202	Toxicokinetics and Toxicogenetics
A0207	Human Physiology
A0306	Chemometrics
A0307	Sampling Strategies
D12	Synthesis and Properties of Inorganic Nanomaterials
T11	Personal Branding

Distribution of Modules by Discipline and by University

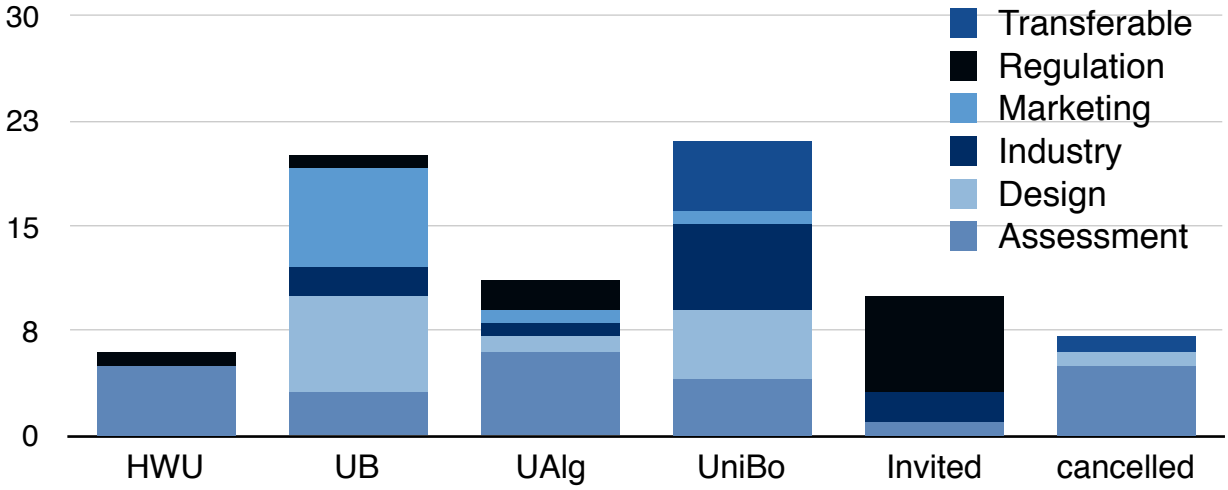
The evolution of the offer of modules in the first three editions of the course (graphic 3) shows a continuous increase in the offer of modules in the disciplines of Assessment and Design. The disciplines of Marketing and Regulation increased significantly from the east to the 2nd edition. The number of cancelled modules reflects the fact that the number of students is insufficient to justify the diversity of offer in the course. The consortium offers ca. 70 modules per year, from which 62-66 are effectively chosen by students.

Graphic 3 - Evolution of the number of modules, by discipline



Graphic 4 depicts the distribution of module offer among the universities of the consortium. UniBo and UB contributed with 22 modules each, UAlg with 14 and HWU with 6. Ten modules were offered by invited specialists, 6 from institutions external to the consortium, and 4 modules were offered by invited Erasmus Mundus Scholars.

Graphic 4 - ChIR modules 2015/2016 (by university)



Calendar

The calendar for 2015/2016 was defined taking into account the following principles: 1) fundamental modules are taught before the ones that require knowledge acquired from others; 2) no student takes more than two modules in the same week; 3) considering the time availability of each lecturer.

The calendar is available online at:

https://www.google.com/calendar/embed?src=e8l7govbncv538g5p1sn3l1ksg%40group.calendar.google.com&ctz=Europe/Barcelona

month	week#	Name of module
Sep 2015	1540	Introduction Meeting
		A0305 - Measuring variability and statistical decision
Oct 2015	1541	M06 - Quality Management
		T02 - Communication Skills
	1542	T09 - Intensive "survival" Language Course
	1543	T09 - Intensive "survival" Language Course
		D01 - Alternative Green Products
	1544	T01 - IT Tools. Introduction
		A0101 - Chemical Transformation and degradation in the environment
Nov2015	1545	I0203 - Pharmaceutical and Fine Chemicals Industry
		I0102 - Green Metrics. # Marco Lombardo
	1546	M09 -Entrepreneurship
		M01 - Business Planning
	1547	M04 - Health and Safety in Chemistry

month	week#	Name of module
	1548	A0102 - Chemical Pollutants
	1549	A0204 - Toxicology
Dec2015	1550	R02 - Risk Management
		R13 - Advanced Risk Analysis
	1551	A0109 - Transport processes and dispersion of pollutants in the atmosphere
	1552	Christmas Holydays
	1601	Christmas Holydays
Jan 2016	1602	Christmas Holydays
	1603	D14 - Peptides and peptidomimetics as green chemistry tools
		I0105 - Green Synthetic Strategies
	1604	A0104 - Environmental Analysis and Detection in the Environment
		A0111 - Chemical and biological treatment of wastewater
		T03 Lab Skills - Introduction to lab experiences
	1605	D11 - Design of chemical formulation
		D09 - Food and Chemistry
Feb 2016	1606	R12 - Introduction to EU and US law
		T03 - Laboratory skills
	1607	R10 - Comparative analysis of chemical regulation - EU and US
		D07 - Chemical Databases
	1608	D10 - Soft Materials
		R03 - REACH and CLP Regulations
	1609	T04 - Research skills
		A0304 - Reference Materials and Laboratory Proficiency Testing Scheme
Mar 2016	1610	A0106 - Environmental and Health Safety of Nanotechnology
		I0206 - Chemical Industry
		I0207 - Nanomanufactoring and Nanoprocessing
	1611	I0104 - Alternative green solvents
		M07 - Innovation Management
	1612	M08 - Biosafety
		I0204 - Industrial Forgery Detection
	1613	Easter Holyday
		Easter Holyday
Apr 2016	1614	D08 - Modeling and simulation
		D02 - Properties of Materials and New Materials

month	week#	Name of module
	1615	A0206 - Principles of Toxicological Assessment
		M03 - Social Perception of the Chemical Risk
		I0206 - Chemical Industry
	1616	D05 - Structure toxicity -relationship
		M02 - Market research.
	1617	I0101 - Renewable sources
		R07 - Nanomaterials and Nanotechnologies Regulations.
May2016	1618	A0108 - Chemical Pollutant Remediation.
		D03 - Patenting New Products
		I0206 - Chemical Industry
	1619	D13 - Sustainable Biocatalytic processes.
		M03 - Social Perception of the Chemical Risk
	1620	D04 - Drug design.
		R09 - Priority substances in EU environmental legislation.
	1623	M05 - Life Cycle Assessment.
		I0103 - Catalysis for a Sustainable Synthetic Chemistry.
		I0206 - Chemical Industry
Jun 2016	1624	A0402 - Chemical Reactivity Hazards.
		R08 - Chemical waste material regulations.
	1626	I0108 - Chiral Technology in Chemical & Pharmaceutical Industry.
		R06 - Pharmaceuticals regulations.
	1627	I0205 - Chemical Process Safety
		A0112 - Bioavailability.
	1628	R14 - Safety in the use of chemicals.
		A0110 - Marine Microbial Diversity and Ecology.
	1629	R04 - Non-EU Regulations: Japan, Brazil and China.
Jul 2016	1630	ChIR Symposium

Within the module I0206 - Chemical Industry, study trips were organized to the following industries in the region of Bologna:

March 4:

BASF, Pontecchio Marconi, Bologna (https://www.basf.com/it/it/company/about-us/Le-sedi-del-Gruppo-in-Italia/Siti-produttivi/Pontecchio-Marconi.html)

April 15:

Endura, Ravenna Industrial Pole, (http://www.endura.it/)

May 6:

Fresenius Kabi, Villadose (http://www.fk-antiinfectives.com/page/fresenius-kabi-anti-infectives)

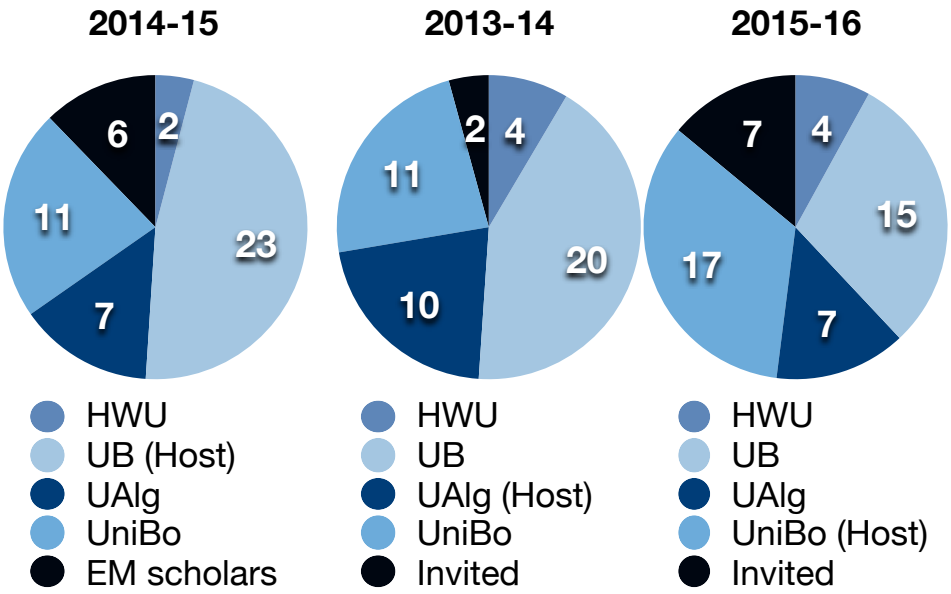
May 26:

Caviro Distillerie, Faenza (http://www.cavirodistillerie.it/)

Teaching Staff Mobility

The high number of staff mobilities is a strong point of the EMMC-ChIR project. Staff mobility opens minds, fosters innovation and creativity in teaching and facilitates research contacts and involvement in transnational projects. The second edition of ChIR involved a total 43 lecturers from the European partner Universities, of which 20 were teaching in the Host university under mobility agreements. This is a decrease in the number of staff mobilities in the 1st edition (35) but is still an impressive number.

Graphic 4 - Number of lecturers involved



Erasmus Mundus Scholars and Invited lecturers

For the third edition of the EMMC-ChIR, one non-European Erasmus Mundus scholar was invited:

Paolo Ricci - Adjunct Professor at University of MA (Amherst), School of Public Health; Visiting Professor at Xiamen University (PR China); Professor at University of Bologna (Italy).

The following European experts also contributed to the third edition of ChIR:

Ruth Jimenez - AEHI (Asociación Española de Higiene Industrial) and INSHT (Instituto Nacional de Seguridad e Higiene en el Trabajo), Barcelona (Spain)

Water Cabri - Fresenius Kabi Anti-Infectives, Bologna (Italy)

Joan Padilla - Covestro, SL, Barcelona (Spain)

Victor Garrido - Stahl Ibérica S.L., Barcelona (Spain)

Eugenia Anta - FEIQUE (Federación Empresarial de la Industria Química Española), Barcelona (Spain)

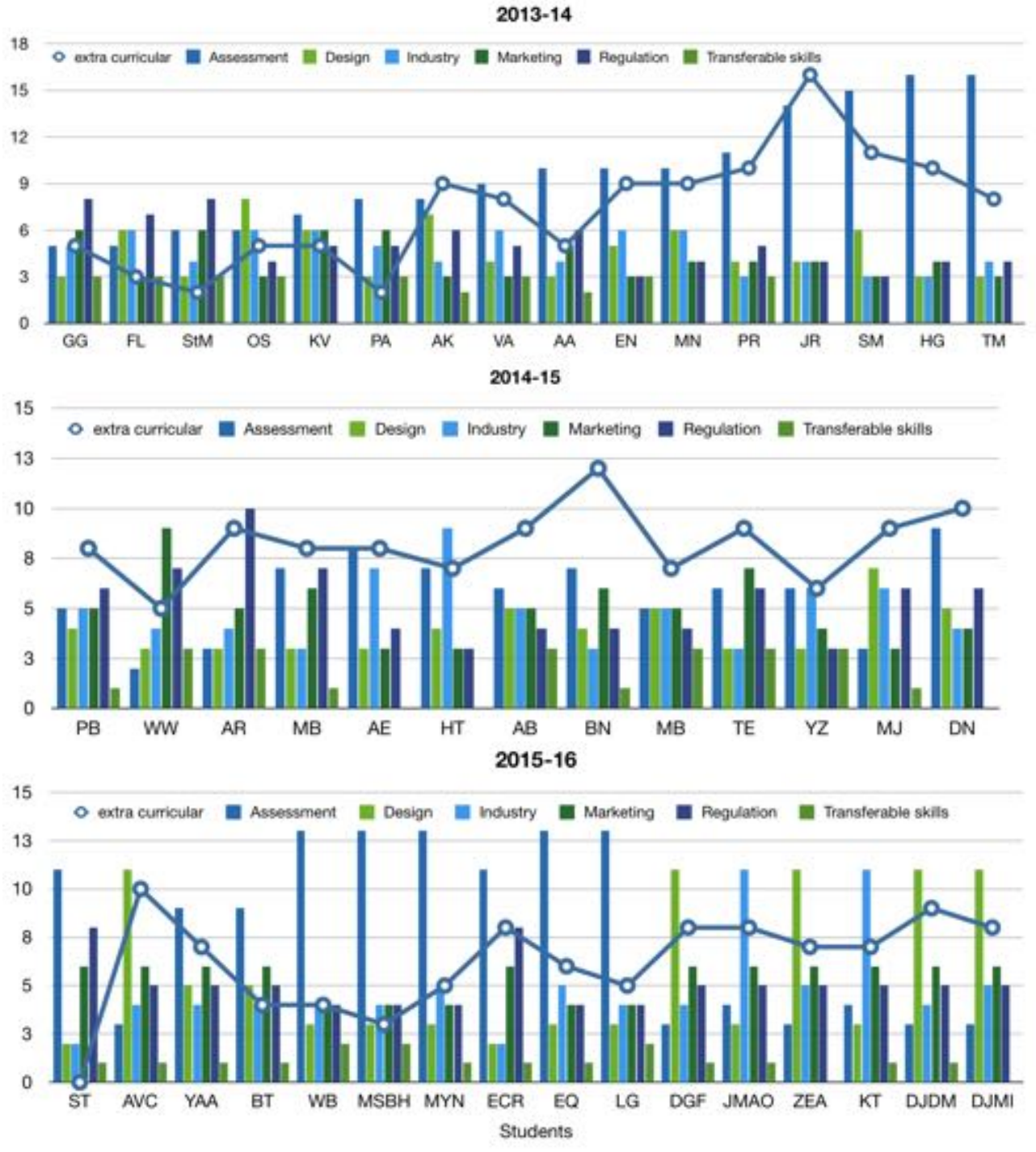
Cristina Massa - Alba Sunchrotton Light Source, Barcelona (Spain)

Student's Choices

Study Plans

Compared to the previous editions, in 2015-16 students focused their study plans in one main discipline, either Assessment, Design or Industry. This contrasts with previous years when several students chose a more evenly balanced composition for their study plans, and may be a consequence of the organization of modules into larger curricular units in the Host university, UniBo.

Graphic 5 - Student's choice of modules



Student Workload

One consequence of the modular and flexible organization of the course its that there is a risk that students choose modules which result in work overload in some times of the academic year, with other periods of relative low amount of work. Ideally, each student should take one module per week, but a maximum of two modules in one week are allowed, provided there is sufficient time in the following weeks to make up for the effort. Graphics 6 shows the mean number of modules taken by students per week. In 2013-14 there were three peaks of workload in December (week 8), March (week 17) and July (week 36). The organization of the calendar was much improved in the following two editions. In 2015-16 only one week was observed with a mean above 1.5.

Graphic 6 - Student workload: average # modules / student / week

5. Research

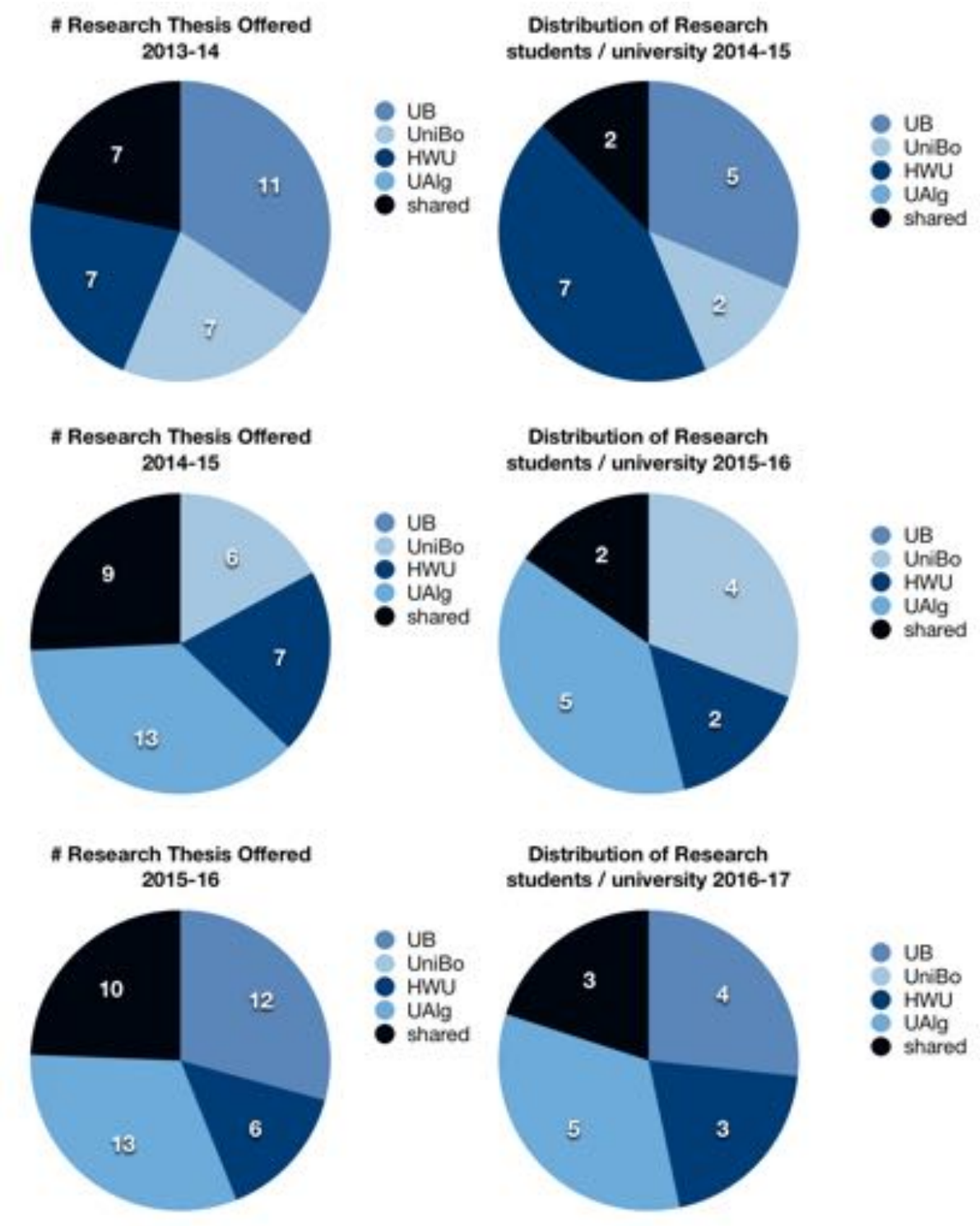
Research Topics

Every year students are offered a choice from 30-40 research topics to pursue during the second year of the course. Students are free to chose the research topic of their preference. In case there is more than one student choosing the same topic, they are advised to select a minimum of 5 topics by order of preference. If necessary, students applying for the same topic are selected according to their background and suitability for the topic.

Some research topics are shared in collaboration between two universities of the consortium, and allow the student to spend 6 months in each university. These projects are particularly interesting for further promoting international research collaboration within the topics of the EMMC-ChIR.

Graphic 7 shows the distribution of research theses offered and final distribution of research students in each course edition. The number of offered shared topics increased from 7 in 2013 to 9 in 2014 and 10 in 2015.

Graphic 7 - Offer of research topics in the ChIR Consortium and distribution



The selection of topics by students from the 3rd edition took place between October and December 2015. The final distribution of topics among the students is presented in the next table.

Student Name	Research Host	Supervisor	Topic description
Ana Vallejo Cortes	HWU	Dr Helinor Johnston	Human safety assessment of nanomaterials.
Boryana Tsenkova	Unibo / CQE	F. Grepioni (UniBo) / M- T. Duarte (CQE)	Multiple crystal forms of active pharmaceutical ingredients: patent implications
Diana Guillen Ferrari	HWU	Dr Thomas Aspray	Remediation of chemical contamination in soil systems
Diego Josué Milián Izeppi	UB	Carmen González	Study of new textures in gastronomy
DJ Donn Matienzo	UB	Dr Pilar Ramirez de la Piscina	Catalytic CO2 conversion for its recycling and use as C1 source: study of new catalysts.
Ester Carregal Romero	HWU	Professor Teresa F Fernandes; Dr Ted Henry	The effects of micro/nano plastics in the aquatic environment.
Jose Miguel Albahaca Oliva	UB	Santiago Esplugas	Chemical oxidative treatments for municipal water reuse.
Kseniia Tuholukova	UB/UJI	Dr Daniel Sainz / Dr Eduardo Peris (UJI)	Preparation of three-dimensional organometallic molecules with cavities, for the recognition of small molecules and selective catalysis.
Loveille Jun Gonzaga	Ualg/ HU	I. Cavaco (Ualg) / Helena Fortunato (HU)	Identification and isolation of new chemical substances from marine organisms, with possible therapeutic applications.
Mohammad Sufian Bin Hudari	HWU	Dr Tony Gutierrez	Effects of oil pollution in the marine environment.
Mulatu Yohannes Nanusha	UAlg/ CCMAR / FCUL	Ana Paula Paiva (FCUL) and Clara Costa (Ualg/ CCMAR)	Combining liquid-liquid extraction with the use of bacteria aiming the recovery of platinum and palladium from aqueous media
Shella Talampas	Ualg/ UB	I. Cavaco / D. Sainz	Study on the different strategies and approaches followed by companies in Portugal and Spain to comply with REACH regulations.
Wubshet Belay	UAlg/ CCMAR/ Dandlen BioScience, Lda	Anahi Dandlen (Dandlen BioScience, Lda), Maria Clara Costa (Ualg/CCMAR), Gustavo Nolasco (Ualg)	Exploring the potentialities of vegetable waste materials for the production of nanoparticles with application in water treatment
Yemataw Addis Alemu	Ualg/CQE	J. Costa Pessoa / I. Cavaco	Evaluation of the transport in blood, uptake and action of transition metal complexes with therapeutic applications
Zohre Eskandari	Ualg / CQE	Pedro Miguel Neves Ribeiro Paulo (CQE) / Ana Rosa Garcia (UAlg)	Functional Nanoparticles for Plasmonic Biosensing

Symposium

The EMMC-ChIR started an annual event in the form of a Symposium aimed at discussing issues related to the topics of the Master: innovation and regulation related to chemical safety and sustainability. The symposium takes place in the Host university in July, during the final week of the academic year, allowing the curricular year students to participate and the second year students to present their research work. The symposium contributes to bring together the students, researchers and industry stakeholders, is an excellent mean for students to share their research work and train scientific communication skills, and also gives to students from consecutive editions the opportunity to meet and share experiences.

The first symposium was organized by the UB on 16-17th July 2015. It counted with nine presentations including three by representatives of industry stakeholders: Montserrat Riera (Zobele Group), Victor Garrido (Stahl) and David Panyella (Puig S.A). Research students from UB and UniBo presented their work to the participants and curricular year students presented posters resulting from the Innovation Skills module.

UniBo organized the second ChIR symposium on the 6th July 2016, entitled “Innovation and Responsibility for a Sustainable Chemical Industry”. It counted with presentations from Italian companies representatives: Elena Badaloni (Sigma Tau), Cosimo Franco (Endura), Gabriele Fontana (Indena), and Mateo Pori (BASF), as well as Katerina Vengel, ChIR alumni, representing the company where she is currently empoyed, Galenicum (Spain). Research students from UAlg, UB and UniBo presented their work orally and in the form of posters.

6. Quality Assessment

Student Performance

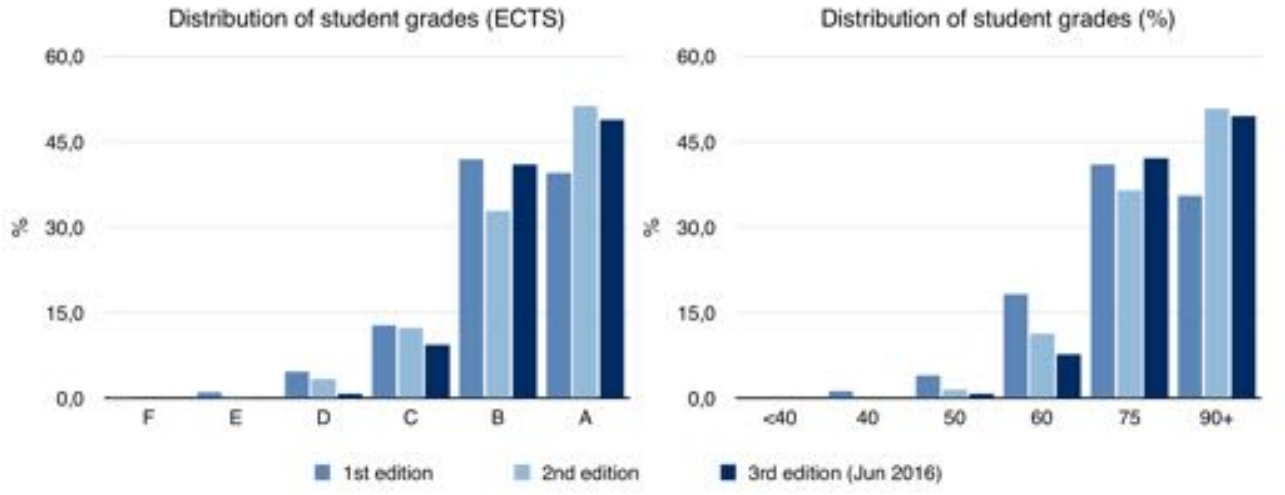
In order to facilitate the transfer of grades between universities of the consortium, two different scales are used: an “absolute” grading scale (0-100%), and the ECTS grading scale (A-F).

By the end of June 2016, 38 modules were graded out of the 40 for which students had already submitted assignments and one months had passed for the evaluation. This is a huge improvement compared to the previous two editions, when at this time of the academic year grades were collected only for 11 and 13 modules.

The average grade in the third edition is 88%, considering all the data collected by June 2016. More than 49% of all grades are A and 90% of all grades are B or above. As in previous years, these are exceptional results reflecting the high quality of Erasmus Mundus students.

Graphic 9 compares the student grades in the 1st, 2nd and 3rd editions. Results for the first edition are not complete, as not all grades are yet available. Results show that the proportion of high grades (A) has increased significantly in the 2nd edition and was maintained in the third. The proportion of lower grades (C, D, E) has decreased consistently in each edition. This may be a consequence of a better calendar organization and better time management from the students (see graphics 5 and 6), reducing workload and increasing focus.

Graphic 9 - Distribution of student grades



Student initiatives

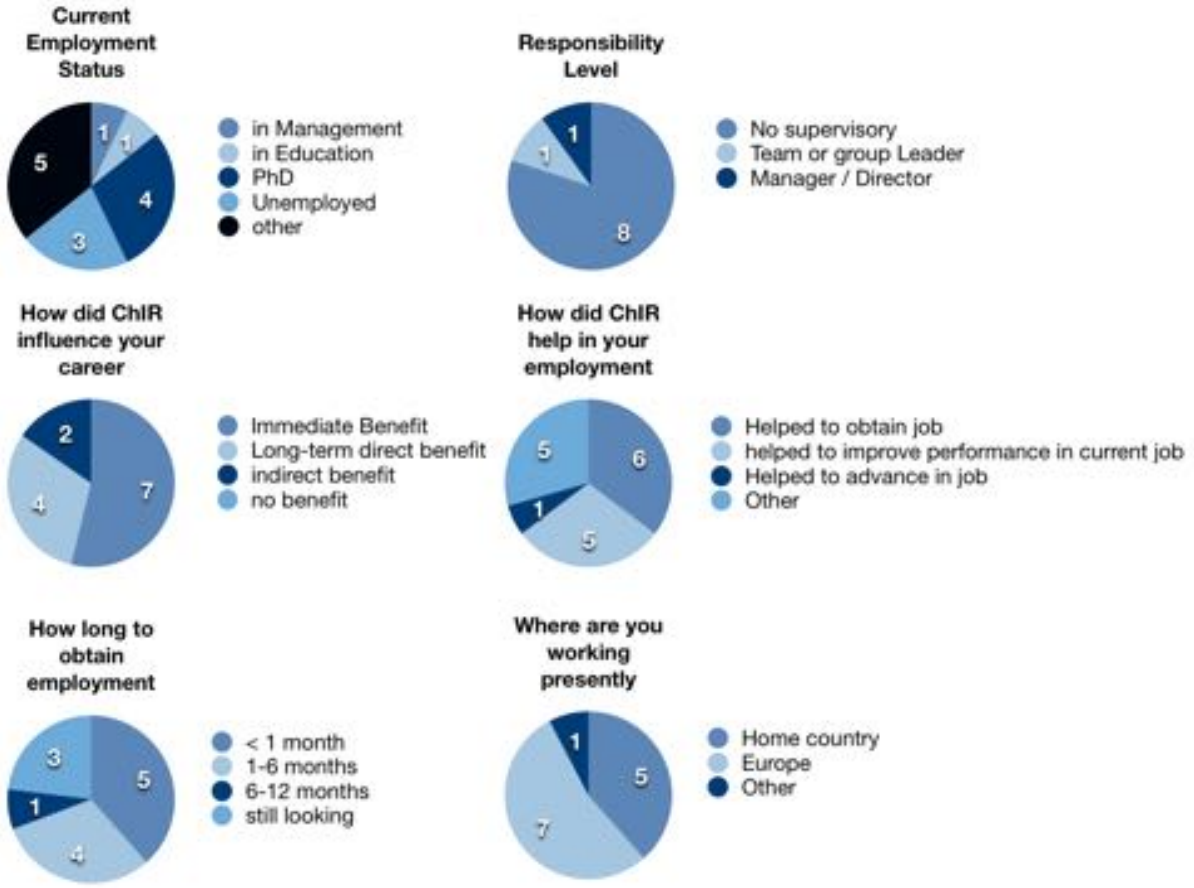
For each edition of ChIR, two representatives are elected among ChIR students to participate in the Programme Committee. A student representative for the EMA (Erasmus Mundus Alumni Association) is selected in a separate election. No EMA election took place during the 2nd edition of ChIR.

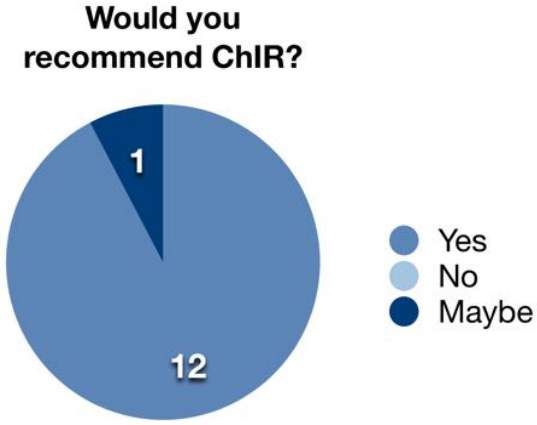
Elected student representatives:

	PCm	EMA
1st edition	Victor Ajao (Nigeria) Sohaib Mahri (Algeria)	Victor Ajao (Nigeria)
2nd edition	Paola Blair Velazquez (Costa Rica) Chukwuka Bethel Anucha (Nigeria)	-
3rd edition	DJ Donn Matienzo (Philippines) Diana Guillen Ferrari (Paraguay)	Pauline Roxas (Philippines)

Alumni Information

The first edition of ChIR graduates completed their MSc theses by September 2015. A questionnaire was sent on June 2016. Fourteen (88%) of the sixteen contacted graduates filled the survey. Of these, only 3 (21%) are currently unemployed. The remaining are either pursuing a doctorate degree (4, 29%) or working in fields related to the ChIR: management, regulatory and risk assessment areas (1, 7%), in education (1, 7%) or in other areas (5, 36%).


Current Employment Status
1
1
4
3
5
in Management
in Education
PhD
Unemployed
other
Responsibility Level
1
1
8
No supervisory
Team or group Leader
Manager / Director
How did ChIR influence your career
2
7
4
Immediate Benefit
Long-term direct benefit
indirect benefit
no benefit
How did ChIR help in your employment
5
6
1
5
Helped to obtain job
helped to improve performance in current job
Helped to advance in job
Other
How long to obtain employment
3
5
1
4
< 1 month
1-6 months
6-12 months
still looking
Where are you working presently
1
5
7
Home country
Europe
Other


Would you recommend ChIR?
1
12
Yes
No
Maybe

Comments from EMMC-ChIR alumni 2013-2015
I will suggest lower number of modules with students more focused on parts that will like to develop interest in. Some modules on biotechnology might make sense to include in the curriculum.
EMMC-ChIR has actually helped me a lot to shape my future career. With my master's degree I have applied a PhD scholarship and got accepted. However, I would like to recommend for considering a kind of mandatory internship in some European regulatory institutions for students after their graduation. I learned a lot from this program but most of my skills are theoretical. This did not help much when I tried to compete in government job recruitment.
Personally, EMMC-ChIR has given me the courage to transition into the regulatory field from the academe. Though I have yet to be formally accepted into my desired position, I am quite excited to try a relatively new field. More than academics (and my experience with my professors are outstanding), the cultural exchange (including new languages) in my mobility program has allowed me to grow as a person, and perhaps that's what pushed me to test the waters of a new career track. So thank you, EMMC-ChIR, for giving me that boost to move forward. God bless and more power!
I enjoyed the ChIR master courses but job opportunities are low. There must be a system to link students with employers in Europe so that the continent will be benefited from students.
It is a life changing program in every aspect.
Thanks for the followup about our current employment status. It could help to improve EMMC-ChIR for the future.
Thanks for the followup about our current employment status. This could assess the weakness and strengths of the EMMC-ChIR program and in turn enables to work for better improvement.
It would be beneficial for ChIR students to have a more detailed description of the possible projects. It might make their choice easier.
It helped a lot my CV.
Great programme- great people-life changing experience

Internal Quality Assessment

As part of the ChIR internal quality assessment, students were invited to assess the course at three levels: the individual modules, the Host institution and the project as a whole.

The **Host institution and the project as a whole** were assessed through one annual questionnaire distributed in June 2016. A copy of the text for the annual questionnaires can be found in annex 1. The results are summarized below in this text.

Individual modules were assessed through online questionnaire available at the end of each module in the Moodle portal. The questionnaire and results of the assessment of individual modules can be found in annex 2.

Questionnaires were managed using the Moodle portal as well as Google forms.

In addition to the ChIR internal quality assessment, in June 2015 the **Erasmus Mundus Students and Alumni Association** (EMA, http://www.em-a.eu) implemented a Quality Assessment Survey to all students from 78 Erasmus Mundus courses, including the EMMC-ChIR. The results of this assessment are available online at https://erasmusmundusassociation.shinyapps.io/Course_browser/. From the EMMC-ChIR, 13 students completed the survey: 9 (56%) from the 1st edition, who completed the curricular year in UAlg and were at the time writing their research theses, and 4 (31%) from the 2nd edition, who were completing the 1st curricular year in UB. The results are presented in annex 3. These compare the ChIR students' assessment to the assessment of the other Erasmus Mundus courses. As Erasmus Mundus courses are selected by the European Commission as examples of excellence, this is a valuable benchmark to evaluate the strongest and weakest points of the EMMC-ChIR. The ChIR is positioned in the top quartile, and hence shows an excellent performance, in the following dimensions:

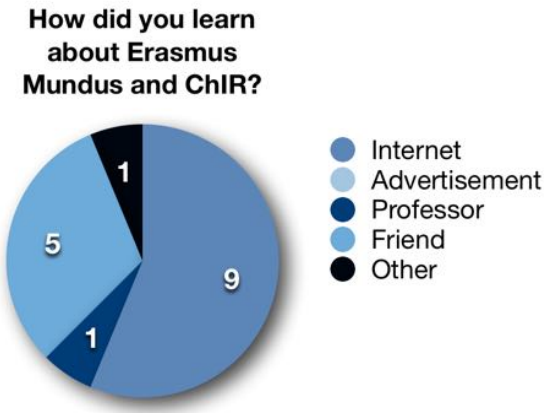
1. *Info and support before the start of the course*: process of enrollment, evaluation methods, standards of behavior;
2. *Introduction process*: academic staff;
3. *Helpfulness of units/people*: Administrative staff; International Student Office;
4. *Support on issues*: financial issues;
5. *Feedback mechanisms*: availability of the course coordinator; clarity of evaluation criteria; consistency of module assessment; formalized system of sharing opinions and feedback; grade conversion across universities; information provided about the type of degree awarded.

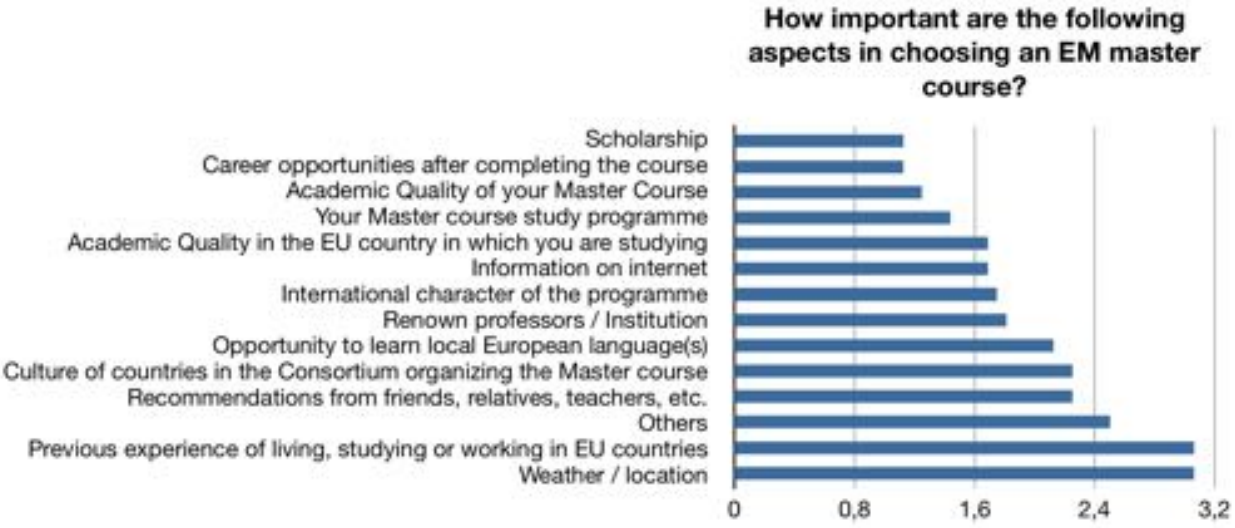
On the other hand, the EMMC-ChIR fell in the lowest quartile when compared to other Erasmus Mundus degrees in the following dimensions, where improvements are necessary:

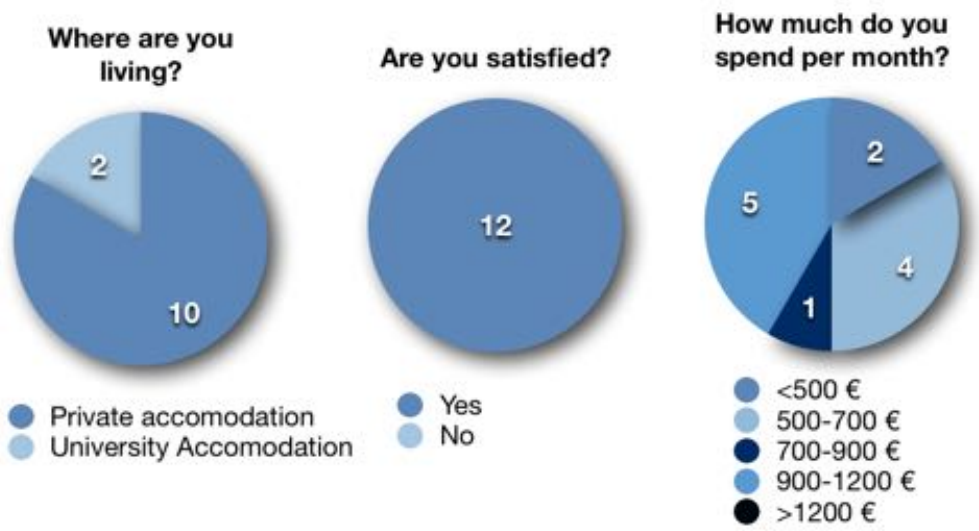
1. *Info and support before the start of the course*: course content; information about fieldwork; timetable;
2. *Introduction process*: other students;
3. *Helpfulness of units/people*: other students;
4. *Support on issues*: health insurance.

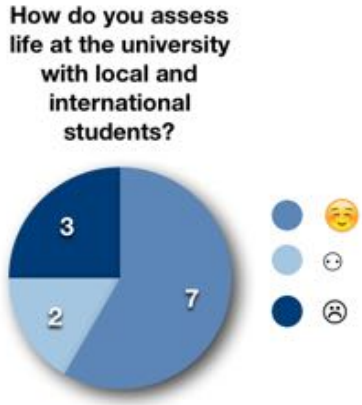
General Questionnaire

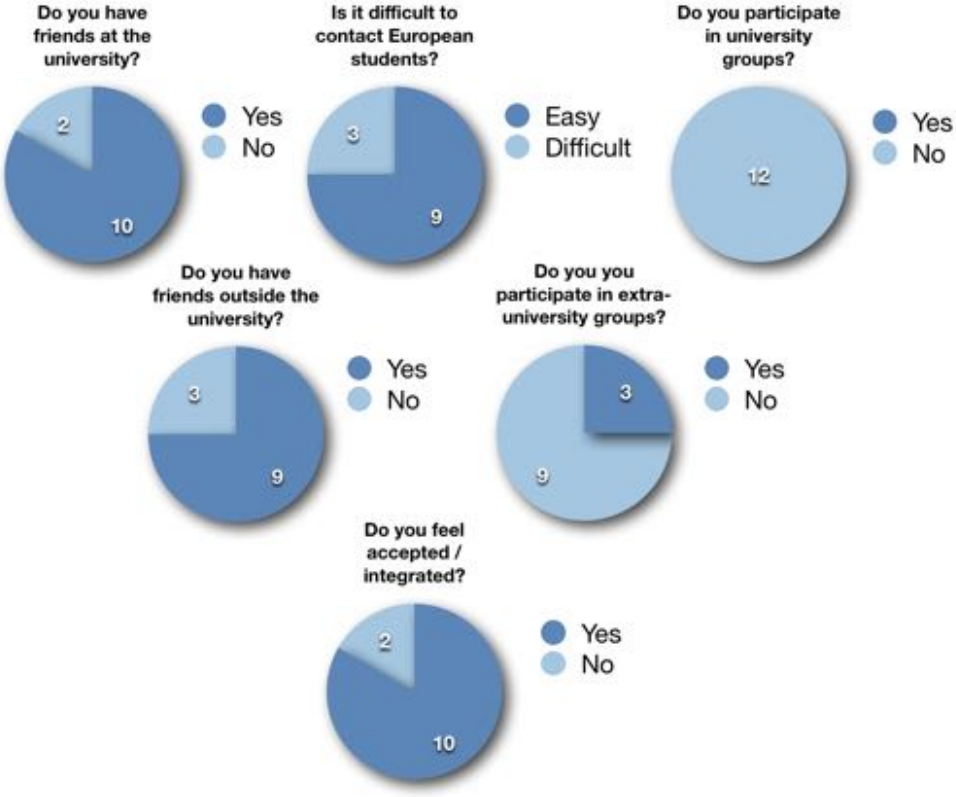
The following results come from the ChIR annual questionnaire, distributed in June 2016 to students of the 3rd edition completing the curricular year in UniBo. This survey evaluates the course as a whole, and the conditions of the host university. Fourteen (88%) students filled the questionnaire. Answering all questions was not mandatory, so several questions were left blank. The results are summarized below.



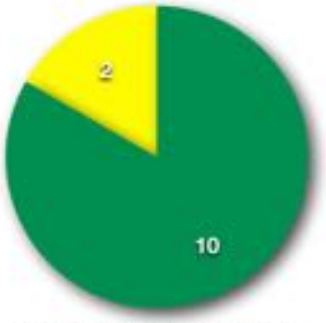



Where are you living?
2
10
Private accomodation
University Accomodation
Are you satisfied?
12
Yes
No
How much do you spend per month?
2
5
4
1
<500 €
500-700 €
700-900 €
900-1200 €
>1200 €


How do you assess life at the university with local and international students?
3
2
7

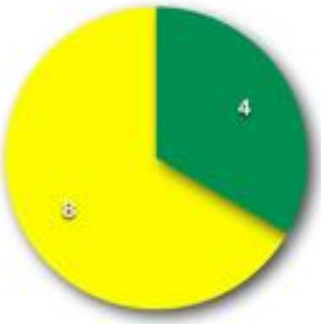

Do you have friends at the university?
2
10
Yes
No
Is it difficult to contact European students?
3
9
Easy
Difficult
Do you participate in university groups?
12
Yes
No
Do you have friends outside the university?
3
9
Yes
No
Do you you participate in extra-university groups?
3
9
Yes
No
Do you feel accepted / integrated?
2
10
Yes
No

Professional Quality of the Programme Coordinator/ Director



Pedagogic Quality of Lectures

Academic Quality of Lectures



Compostion and Content of the Curriculum

Balance between lectures an self-initiated study

Balance between lectures, group work and other forms of study

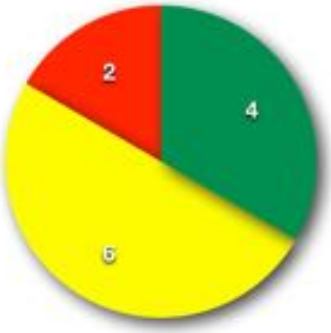
Help, access to and time devoted to you by the academic staff

local language training

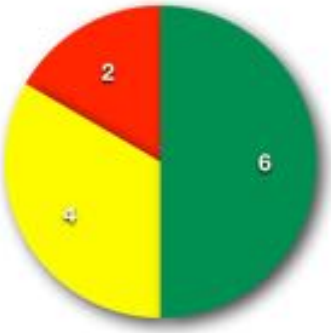
Integration Activities (welcome programme, mentoring and guidance from staff, help from local students and alumni, etc)

Balance between lectures an self-initiated study

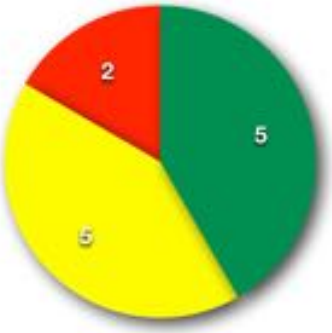
Balance between lectures, group work and other forms of study



Help, access to and time devoted to you by the academic staff



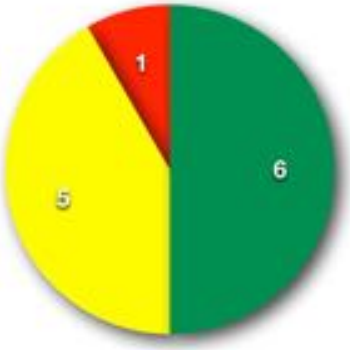
Service from the administrative staff



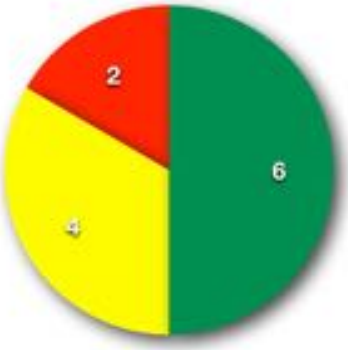
Service from the international office

Quality and access to the library

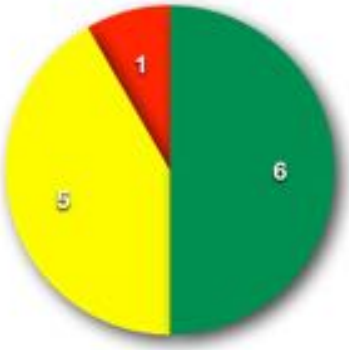
Quality and access to the laboratories



Quality and access to the computing facilities



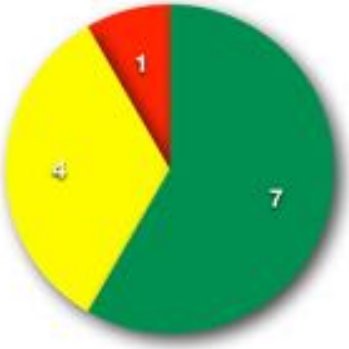
Quality and access to the internet



Quality and access to the canteen

Quality and access to accomodation

Quality and access to transport



The best in the EMMC-ChIR	The worst in the EMMC-ChIR
Good organisation and respect of schedule.	
Master Course provide us lots of moodles which cover many areas, according to our interest, we are free to cho	
I found most professors very helpful, supportive and welcoming. I found most of the modules in ChIR are very interesting and motivate me to dig more and learn more. Department of chemistry in bologna is very interesting and there is well organized laboratory. It is very historical and fascinating for people who loves Chemistry, especially organic chemistry.	Some professors struggle to deliver the course appropriately due to English language incompetency. And also I found few professors who come to give lecture unprepared.
Lecturers(staffs) have good quality of teaching and they are positive to help students. The university has a good internet access.	
Meeting new friends.	Lessons are not well planned, a lot of repetition between lecture module, some modules are basically repeating each other, others gave superficial information and yet demand a lot out of the assessment. Schedules are not fixed, lessons keep changing in fact even within the same day the lessons change timing. Some lecture notes were not prepared, others were not in English language but from the language of the country of the institution. There is no continuity in the modules. The paths were not defined well. Some modules which are interconnected example toxicity were held at different parts of the semester, lecturers have to refresh from the start the concepts hence precious 12 hours of lectures wasted having to revise or repeat concepts.
(1) Subject of the course, studying chemistry with a strong emphasis on sustainability; (2) In the majority, highly qualified teaching staff, of a special note are the Professors of the University of Bologna; (3) Classmates!	Some courses appeared to be below my expectations
Excellent quality of lectures and very welcoming environment from the Italian professors. Multidisciplinary approach to the most recent innovations in the chemical field from the regulatory, environmental, industrial and market point of view. Team of highly professional and qualified lecturers, both from academia and the industry. The opportunity to meet students from all over the world and experience different cultures.	Lack of flexibility when building your own study path due to the University rules implies that students need to complete modules which are not in line with their main interests.
structure of each program path	Some of the professors are not competent in the English language; some of the modules are redundant;

The best in the EMMC-ChIR	The worst in the EMMC-ChIR
The UniBo, University of Algarve and Herriot Watt professors I have had the pleasure to have lectures with are exceptional.	Many of the professors who came from outside Bologna were poorly prepared, power point presentations downloaded off the Internet, slides in Spanish/Catalan, and had poor English skills.
The coordinators and professors are ready to provide assistance. The best practices of the four consortium universities are combined into a single academic program.	There are faculty members whose skills and knowledge of the subject being taught are inadequate. There is one whose grading method is inconsistent and personally offensive.
Overall good courses and support from the program coordinator, I enjoy ver much having classes with italian professors.	The organization of the modules and changes in schedule very last minute, the work overload is too much specially at the end.
1. The Master course, as it is, is very interesting. 2. It tries to teach us things from different perspectives. 3. Competent professors/lecturers. 4. The professor are concerned with the students. There is very good rapport between the professors and students. 5. Good interactions among the students.	1. The classes are not well-scheduled. For example, related modules should have been taught consecutively for better integration of the lessons. 2. There are too many modules. Some of the modules actually overlap, teaching the same things over. It will be better if professors are provided course outlines for every module so that the objectives for that module will be clear. Better yet, some modules may be merged. 3. Some of the professors have trouble with English. Having been required good English proficiency, we also expect that the professors to have the same level of English competence. 4. Too much bureaucratic stuff on the Italian system such as during opening a bank account, registration, etc.
The dynamic part of the master is good, free to choose the modules.	Some courses were not well prepared and it would be good to have other courses instead of repeating again and again some topics as chemical databases and research skills which could have been useful in the beginning and not in the middle of the course.
Italian professor were very good, the facilities are good and comfortable, availabity of the program coordinator.	Support to find accomodation, local language classes, no integration activities

Module Questionnaires

The questionnaires designed to collect the opinion of students on the quality of the modules were based on the SEEQ (Students' Evaluation of Educational Quality) reference questionnaire developed by H. W. Marsh[1].

The detailed results from the module questionnaires collected by June 2016 can be found in annex 2.

The questionnaire was available online at the end of each module in the Moodle portal. Students were invited to fill the questionnaire only after submitting the module assignments, in order to have a complete view of the module, and before the grades were published in order not to be influenced by their grade. Participation was not compulsory, but students were reminded of the importance of their contribution to the evaluation of the course.

An individual report for each module summarizes the quantitative as well as qualitative analysis of the questionnaires. Results from both students and lecturer are represented in the same page by colored pie charts and can be easily analyzed by visual inspection. An overall "green" report does not raise concerns, while the appearance of "reds" requires some attention. A complete version of the report, containing the open student comments, is given to the lecturer and can be used to improve the module in future editions.

1 "SEEQ: a reliable, valid and useful instrument for collecting student's evaluation of university teaching", H. W. Marsh, British Jpurnal of Educational Psychology, 52 (1) 77-95, 1982

Annexes

Annex A

“Module Paths” as organized by UniBo for the 3rd edition.

Annex 1

Copy of the Annual Questionnaire and Module questionnaire.

Annex 2

Results of the QA of individual modules - 2nd edition

Results of the QA of individual modules - 3rd edition

Annex 3

Results of the QA survey by EMA

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UNIVERSITÀ DI BOLOGNA

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