Industrial Application of Organic Chemistry

Summer School 2015, Tromsø

Guide and Call for Proposals

For application to an intensive summer school introducing the industrial application of organic chemistry for students at Bachelor/Master/PhD levels in the framework of the project „Smooth Transit from Master to Doctoral Education"

The University of Szeged, Department of Organic Chemistry, University of Debrecen Department of Physical Chemistry and University of Tromsø Faculty of Science and Technology, Department of Chemistry announce a call for application to their joint intensive summer school.

The intensive summer programme is being realized in cooperation between the University of Szeged, University of Debrecen and the University of Tromsø, the programme is supported by the EEA Grants. The aim of the project is the development of an interdisciplinary education program, which is able to complete the present education system of the partner institutes, and reaching out for every students, not only who have a chemistry major, but other students who are interested in chemistry. As a result of the project the attendants will be able to adopt an innovative, more industrial attitude, which could be at advantage on the labour market.

Please note, that the working language used at the summer school is English.

Duration of the summer school: 20 days
Venue: University of Tromsø (Tromsø, Norway)
Planned date: 7th July 2015 – 27th July 2015.[1]
Application deadline: 31th March 2015.

Eligibility criteria:

Application of students studying chemistry and/or expressing an interest in organic chemistry is expected from the training areas:

- Materials Engineering (BSc)
- Biology (BSc)

[1] The organizers reserve the right for the change of the program.

- Bilogical Engineering (BSc)
- Chemistry (BSc)
- Chemical Engineer (BSc)
- Environmental Science (BSc)
- Environmental Engineering (BSc)
- Molecular Bionics (BSc)
- Biology (MSc)
- Bilogical Engineering (MSc)
- Biotechnology (MSc)
- Environmental Science (MSc)
- Chemistry (MSc)
- Chemical Engineer (MSc)

PhD students who are expressing interest in Chemistry and/or related fields of it are given opportunity to participate in the programme.

Further conditions:

- student needs to be a registered student at the cooperating universities at the time of the Intensive Programme
- at least one completed semester in scientific disciplines described above
- adequate level of English proficiency is required for participation at programme (language certificate , or personel interview is required)

Application package:

- application form
- motivation letter (in English)
- copy of certificate of language proficiency

The programme provides opportunity for participation of ten students from the University of Szeged, 5 students from the University of Debrecen, and 2 students from the University of Tromsø.

For the duration of the Summer School the Hungarian students are supported as the following:
Subsistence grant: 35 EUR/day/person
Travel grant: 500 EUR/person.

Scholarship agreement will be concluded with the participating students.

Number of obtained credits in case of successful completion of the programme: 5 credits

The „*Smooth Transit from Master to Doctoral Education*" project benefits from a €38,000 grant from Iceland, Liechtenstein and Norway through the EEA Grants.

The second workshop was hosted by the University of Tromsø, the Norwegian project partner. The representatives of the University of Szeged, and the University of Debrecen were also in attendance besides the representatives of the University of Tromsø. During the workshop the course outline of the Summer School, the educational methods used during the intensive programme, and the evaluation of the students' performance were discussed, among other topics.

Through the EEA Grants and Norway Grants, Iceland, Liechtenstein and Norway contribute to reducing social and economic disparities and to strengthening bilateral relations with the beneficiary countries in Europe. The three countries cooperate closely with the EU through the Agreement on the European Economic Area (EEA).

For the period 2009-14, the EEA Grants and Norway Grants amount to €1.79 billion. Norway contributes around 97% of the total funding. Grants are available for NGOs, research and academic institutions, and the public and private sectors in the 12 newest EU member states, Greece, Portugal and Spain. There is broad cooperation with donor state entities, and activities may be implemented until 2016.

Key areas of support are environmental protection and climate change, research and scholarships, civil society, health and children, gender equality, justice and cultural heritage.

More information:

website: http://www2.sci.u-szeged.hu/orgchem/hu/hirek/36-norveg-projekt.html
e-mail: barra@chem.u-szeged.hu

Workplan of the Summer School[2]:

Programme			
	Activity1: Lectures	**Activity2: Literature survey**	**Activity3: Laboratory experiments**
	Main theme: Modern Methods for Selective Functionalization of Privileged Scaffolds in Organic Syntheses		
Day1	Aromatic and heteroaromatic privileged scaffolds in medicinal chemistry	Application in the phamaceutical industry of those methods presented in today's lecture	Practical preparation for the small experimental tasks
Day2	Transition metal catalysis in the pharma-ceutical and fine chemical industry: General	Based on the literature survey the theoretical preparation of the experimental tasks	Practical preparation for the small experimental tasks
Day3	Cross-coupling reactions	Application in the phamaceutical industry of those methods presented in today's lecture	To carry out the planned experimental task, based on the theoretical preparation
Day4	Modern amination methods	Based on the literature survey the theoretical preparation of the experimental tasks	To carry out the planned experimental task, based on the theoretical preparation
Day5	Modern methods for etherification	Application in the phamaceutical industry of those methods presented in today's lecture	To carry out the planned experimental task, based on the theoretical preparation
	Evaluation of the students' progress - by tests or oral examination		
Day6	Metathesis and other C=C double bond formation reactions	Application in the phamaceutical industry of those methods presented in today's lecture	To carry out the planned experimental task, based on the theoretical preparation
Day7	Modern methods for oxidation and reduction	Application in the phamaceutical industry of those methods presented in today's lecture	To carry out the planned experimental task, based on the theoretical preparation
Day8	Heterocycles via transition metal catalysis: Synthesis and functionalization	Based on the literature survey the theoretical preparation of the experimental tasks	Evaluation of the experimental processes and collection of the experience
Day9	Organic reactions in aqueous media	Based on the literature survey the theoretical preparation of the experimental tasks	Evaluation of the experimental processes and collection of the experience
Day10	Alternative technologies: Microwave-assisted organic synthesis and flow chemistry	Based on the literature survey the theoretical preparation of the experimental tasks	Spectroscopical characterization of the prepared compounds
	Evaluation of the students' progress - by tests or oral examination		

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UNIVERSITAS SCIENTIARUM SZEGEDIENSIS
SZEGEDI TUDOMÁNYEGYETEM


UNIVERSITY
of DEBRECEN


UiT
THE ARCTIC
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OF NORWAY


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LIECHTENSTEIN
NORWAY
eea
grants

Programme			
	Activity1: Lectures	**Activity2: Literature survey**	**Activity3: Laboratory experiments**
	Main theme: Industrial Catalysis		
Day11	Chemical industry: production, scale-up, safety issues	Application in the phamaceutical industry of those methods presented in today's lecture	Spectroscopical characterization of the prepared compounds
Day12	Route selection, material selection, solvent selection	Application in the phamaceutical industry of those methods presented in today's lecture	Spectroscopical characterization of the prepared compounds
Day13	Running reactions and monitoring	Application in the phamaceutical industry of those methods presented in today's lecture	Theoretical preparation for the pharmacological examination
Day14	Work-up, purification, characterization	Based on the literature survey the theoretical preparation of the experimental tasks	Theoretical preparation for the pharmacological examination
Day15	Reactions in the pharmaceutical and the fine chemical industry	Based on the literature survey the theoretical preparation of the experimental tasks	Execution of the pharmacological examination
	Evaluation of the students' progress - by tests or oral examination		
Day16	Oxidation and reduction on large scale	Based on the literature survey the theoretical preparation of the experimental tasks	Execution of the pharmacological examination
Day17	Carbonylation, Cyanation and Sandmeyer reaction	Application in the phamaceutical industry of those methods presented in today's lecture	Execution of the pharmacological examination
Day18	Patented C-N and C-O bond forming reactions	Based on the literature survey the theoretical preparation of the experimental tasks	Execution of the pharmacological examination
Day19	Industrial cross-coupling reactions	Literature survey of the pharmacological examination of the planned compounds	Evaluation of the pharmaceutical results and the determination of further work
Day20	Biocatalysis in industrial production	Literature survey of the pharmacological examination of the planned compounds	Evaluation of the pharmaceutical results and the determination of further work
	Evaluation of the students' progress - by tests or oral examination		