



# Students' Manual

---

HU08-0002-M4/IP

„A smooth transit from master to doctoral education.”

## Table of contents

1. Prelude: Project Introduction.....	3
2. Introduction of the universities.....	4
2.1. University of Szeged .....	4
2.2. University of Debrecen.....	5
2.3. The Arctic University of Tromsø .....	6
3. Introduction of the summer course, syllabus .....	7
4. Practical information .....	11
Flight information.....	11
Accommodation information .....	12
Health insurance.....	14
Campus map.....	<b>Hiba! A könyvjelző nem létezik.</b>

## 1. Prelude: Project Introduction

The „*Smooth Transit from Master to Doctoral Education*“, with the identification number HU08-0002-M4/IP, is a project during which an intensive educational summer course takes place. The course introduces the industrial application options of organic chemistry for the participating university students.

The project is realized by the cooperation of the University of Szeged, the University of Debrecen and the University of Tromsø. The aim of the project is to develop an up-to-date curriculum, which completes each other's vocational training in a way that students, who are interested in chemistry, could gain an innovative point of view focusing on the industrial application options of chemistry and with which they could get advantages entering the job market as well.

We are looking for students from the following educational fields:

- material engineer (BSc)
- biology (BSc)
- bio engineer (BSc)
- physics (BSc)
- chemistry (BSc)
- chemical engineer (BSc)
- environmental studies (BSc)
- environment engineer (BSc)
- molecular bionics (BSc)
- biologist (MSc)
- bio engineer (MSc)
- biotechnology (MSc)
- physician (MSc)
- environmental studies (MSc)
- chemist (MSc)
- chemical engineer (MSc)

As the students are going to do laboratory experiments in the field of organic chemistry, the criterion of registration is to have four completed semesters of the fields listed above.

The students participate on block courses and solve individual tasks under the direction of the teacher. The lectures and other tasks (literature, experiments, etc.) will be followed by an evaluation process, during which the participants are able to share their opinions about the lectures and tasks.

The development of the students' professional knowledge will be measured by oral examination. The research project of the students will end by a report, in which students summarize their newly gained knowledge and competencies.

## 2. Introduction of the universities

### 2.1. University of Szeged

The Faculty of Science and Informatics operates since 1921, when the city of Szeged accommodated the University of Kolozsvár.

The Faculty divided its educational and researching fields among its institutions and departments. There are seven departments, which can be treated as independent researching and teaching institutions:

- Department of Biology
- Department of Physics
- Department of Geography and Geology
- Department of Informatics
- Department of Chemistry
- Department of Environmental Studies
- Department of Engineering and Material Studies
- Bolyai Institution



The building of the Department of Chemistry in Szeged

The University of Szeged takes part in Erasmus since 1997. In 2012 it cooperated with 433 universities from 30 countries and 314 cities.

## 2.2. University of Debrecen

The other Hungarian partner of the project is a unit of the Chemistry Institute from the Faculty of Science and Technology of the University of Debrecen.

The HAS-DE Homogen Catalysis and Reaction mechanisms Research Group is in close cooperation the Chemistry Institution. Both units are located in the top level of the Chemistry Building's D wing with the exception of the students' laboratories and the Roentgen diffraction Laboratory.

There research and course programmes are available in physics and chemistry in Hungarian in Chemistry BSc, MSc, Chemical Engineer BSc, Environmental Studies Bsc, Bio engineer BSc, and Pharmacologist MSc. With other units of the Chemistry Institution, informatics and analytic courses can be chosen, besides that some special colleges are available for the students as well.

For international students in chemical engineering and pharmacology, Chemistry and Physics lectures and seminars are available in English.

Main research topics are the following:

- homogen catalysis
- photochemistry
- oscillating chaotic reactions, chemical waves
- roentgen diffraction

The Department of Chemistry and Physics was founded by Imre Lajos. The current director of the Department is Gáspár Vilmos. The director of the MTA-DE Homogen Catalysis and Reaction mechanisms Research Group is Professor Joó Ferenc, who is responsible for the professional implementation of our project at the University of Debrecen.



The building of the Chemistry Institute in Debrecen

### 2.3. The Arctic University of Tromsø

The Arctic University of Norway (UiT) is the northernmost university of the world. Its location on the edge of the Arctic implies a mission. The Arctic is of increasing global importance. Climate change, the exploitation of Arctic resources and environmental threats are topics of great public concern, and which the University of Tromsø takes special interest in. At UiT The Arctic University of Norway you can explore global issues from a close-up perspective.

UiT's key research focuses on the polar environment, climate research, indigenous people, peace and conflict transformation, telemedicine, medical biology, space physics, fishery science, marine biosprospecting, linguistics and computational chemistry.

12000 students and 2700 staff study and work at the University of Tromsø. Teaching is research-based. UiT's seven faculties offer, in spite of a dedication to Northern issues, a broad range of study programmes. The academic community in Tromsø is highly international. More than 20% of the academic staff and 10% of the student body are from abroad.

Education and research at the Department cover the following topics:

- chemistry of materials
- drug development
- enzyme technology
- biotechnology
- marine bioprospecting
- chemical synthesis
- basic theoretical chemistry
- biomodelling
- bioinformatics



Tromsø Campus

## Library

### Science and Health Library

The Library's main task is supporting research and educational activities. The library is, however, open for use by citizens and visitors over the age of 18. The service level varies according to user category. The library is organized in three main units, with 9 branches open to the public. Electronic resources are accessible to all users on campus sites, but are restricted to university affiliation outside campus.

Opening hours: Mon-Fri: 08:00-20:00 Saturday: 10:00-15:00  
This floor provides 152 modern work space. Suitable for group and individual learning. Furnished as to ensure noise reduction. Each student pays attention to the other, the quiet environment is provided.

## Travel by bus

Tickets can be redeemed leader of the bus, only cash payment only. One ticket 40 Norwegian Kroner, a ticket for the whole day is 90 Norwegian kroner. In some places, you can also buy tickets in advance (airport, bus station ticket office). The presale ticket costs 30 Norwegian Kroner, day pass costs 70 Norwegian Kroner. The ticket must be kept until the end of the trip.

The university campus in the city center can be reached on the following route: the 20 or 21 bus starts every five minutes in the morning at the main square, it takes 10 minutes to reach the bus stop of the university. You need to get off at the stop at a place called UIT / ISVs.





[https://uit.no/om/art?p\\_document\\_id=343551&dim=179038](https://uit.no/om/art?p_document_id=343551&dim=179038)

1. [Faculty of Humanities](#)
2. [Faculty of Law](#)
3. [Faculty of Science: Physics, Computer sciences, Chemistry, Mathematics and Statistics](#)
4. [Faculty of Medicine](#) - DMF and [Dep. of Health Science HiTø/ AFH](#) (MH-bygget).
5. [Faculty of Social Sciences](#) - SVF
6. [Norwegian College of Fishery Science](#) - NFH
7. Administration Building
8. [Árdna and Joho Niillas goahti/ Nils Jernslettens gamme](#) (Sámi turf hut)
9. [Botanical Garden](#)
10. [Dep. of Arctic Biology](#) (AAB)
11. Breivangveien 23. Under construction  
[Tromsø-undersøkelsen](#) ("Tromsø 6") tom høsten 2008
12. [Breivika kindergarten](#) (Studentsamskipnaden)
13. [Breivika High School with sports centre](#)
14. Breiviklia - SVF: [Faculty of Social Sciences](#)  
[The Student Counselling Center](#)
15. [Technical department](#) (Sadm)
16. [Pharmacy building: Institute of Pharmacy](#) (MF/IF), [RELIS CTCC Centre for Theoretical and Computational Chemistry](#)
17. [NOFIMA Norwegian Institute of Fisheries and Aquaculture](#)
18. Tromsø Research Park
19. Geology tour and construction site for a new Tromsø University Museum
20. The student sports centre [Kraft](#) (Studentsamskipnaden)
21. Medicine and Health Studies building (MH): DMF, AFH (see also 4.) and University library - Dep. of Science, Medicine and Health Science (RMH-library)
22. Science Building (Naturfagbygget)
23. Lower Pavillion - SVF: [Centre for Peace Studies](#)
24. Northern Light Planetarium: [Nord-norsk vitensenter](#) (Knowledge Center of Northern Norway)
25. Science Building (Realfagbygget) - MNF (see also 3.)
26. [State Archives](#)
27. [The Student Welfare Organization](#)
28. [Dental Building](#) - DMF/TANN: [Institute of Clinical Dentistry](#) (IKO)
29. Non-experimental Science Building (Teorifagbygget) – is divided into six houses
30. Terminalgata 38 (tidl. Breivika senter). [Juss-hjelpe](#)
31. [Universet Child Care Centre](#) (Studentsamskipnaden)
32. [University library](#) (UB) med [Akademisk Kvarter](#) - book shop (Student Welfare Organisation)
33. [University hospital of Northern Norway - UNN](#)
34. Upper pavillion:  
[Centre for women and gender research](#) (KVINNFORSK), [Unions](#), [Student clergyman](#)



### 3. Introduction of the summer course, syllabus

Theoretical background: At the beginning of the day the students will become familiar with the theoretical background of a special field of organic chemistry, related to the actual task of laboratory work. To supplement the knowledge gained during the lectures and prepare and establish the laboratory work the students will carry out literature survey in the second part of the lectures.

The topics of the lectures are planned to be the following:

- Chemical industry: production, scaling-up, safety issues
- Transition metal catalysis in the pharmaceutical and fine chemical industry: General
- Cross-coupling reactions: General and mechanisms
- C-C single bond forming reactions: Friedel-Crafts reactions, -arylation
- Metathesis and other C=C double bond formation reactions
- Oxidation and reduction on large scale
- C1-chemistry: Carbonylation, cyanation, Sandmeyer reaction
- Selective C-H functionalization
- Aromatic and heteroaromatic privileged scaffolds
- Industrial cross-coupling reactions: Patented C-C, C-O and C-N bond forming reactions
- Organic reactions in aqueous media
- Alternative technologies: Microwave-assisted organic synthesis and flow chemistry
- Bio catalysis

Laboratory experiments: During the Summer School the students will carry out a special sequence of reactions related to the topics of the lectures in the field of organic chemistry.

Evaluation: During the laboratory course the students will write laboratory records about the implemented reactions and collect their experiences. At the end of each laboratory course they will record if they reached the necessary results or not. The acquired theoretical knowledge of the students will be assessed by oral examination by the lecturers at the end of the Summer School.

During the course regular evaluation meetings give the opportunity to answer questions, discuss problems.

At the end of the course the participating students are expected to be able to

- to carry out similar type of reaction sequences in a fine chemical laboratory
- to collect the experience and to write a know-how with these processes
- the lectures help to improve the students' literature knowledge in the discussed topics

As a result of the programme the students will be able to plan a similar reaction sequence, to carry out the reaction steps, to collect and assess the whole sequence and write a know-how using the newly gained competences.

The pedagogical program is focusing on improving the students' ability to learn permanently. The learning process will become complete by cooperation with each other. In the course of cooperative learning the students' independence is realized by the teacher's help (coaching). Typically 2-6 students form a small group with a leader who has more experience in laboratory work, in organic catalysis. The members of the team get to know each other, they share the problem and divide the tasks, they plan the work together, they solve the problem cooperatively, and finally they evaluate the results via constructive discussion.

## 4. Practical information

### Flight information for Hungarian students

#### Size and weight

We do not accept individual *baggage* units that weigh more than 32 kg or less than 2kg. A total *baggage* allowance of 64 kg per person is permitted. The weight limit does not apply to electric wheelchairs, musical instruments or animals in the cargo hold.

We accept individual items up to: length 250cm, height 79cm, width 112cm. The total circumference (L+H+W) must not exceed 300 cm. The size limit does not apply to a double bass.

NOTE: For flights operated by Danish Air Transport, we accept individual items up to: length 190cm, height 143cm, width 70cm. The total circumference (L+H+W) must not exceed 300 cm.

Checked baggage: 2 x 20kg

Packing checked *baggage*

We strongly recommend for all *baggage* to be clearly marked with the passenger's name and phone number.

All *baggage* must be packed in such a way that it can withstand normal *baggage* handling. This means that the item will withstand the impact of coming into contact with other luggage in the *baggage* system and when loading/unloading the aircraft.

Each passenger is solely responsible for packing their luggage in such a way that the contents cannot be damaged. To the fullest extent permitted under the Montreal Convention, the passenger is liable for any damaged caused to the Carrier due to their *baggage*, should for example, a bottle containing liquid in their checked in luggage break. Read more about *baggage* protection.

Certain items are not accepted for carriage in checked *baggage*. Read more about restricted items.

Restricted items

Published 27/09/2013 11.35 AM | Updated 26/01/2015 09.08 AM

Passengers must ensure that their *baggage* does not contain objects that can damage and/or cause danger to the aircraft, persons or property on board aircraft. All *baggage* must be packed in accordance with [IATA dangerous goods regulations](#) (PDF - English Only).

NOTE: You are responsible for ensuring that your *baggage* is properly packed and does not contain any restricted items. Norwegian is not responsible for any *baggage*/articles which may be confiscated at security checkpoints.

- [Restricted items - checked baggage](#)
- [Liquids in hand baggage](#)

#### Restricted items - checked *baggage*

We recommend that passengers do not include the following items in their checked *baggage* as we have limited liability in the event of loss or damage to your checked *baggage* as outlined in our General Conditions of Carriage:

- Valuable items such as: cash, jewellery, precious stones, computers, game consoles, photo/video cameras and mobile phone,
- Fragile items (including but are not limited to glass/bottles),
- Perishable foods,
- Glasses, sunglasses,
- Keys,
- Working Documents,
- ID papers,
- Medicine and medical certificates.

#### Liquids in hand *baggage*

A maximum of 1 litre of liquid, creams and gels are permitted in hand luggage. Each item must not exceed 100ml. Liquids, creams and gels must be packed in a separate transparent re-sealable bag must be presented at the security checkpoint.

The following items may be accepted for carriage onboard beyond these limits. Please consult the airport's website for more information as restrictions may vary.

- **Baby food and baby milk:** You may be permitted to bring baby food necessary for the flight onboard in your hand *baggage*. You must be prepared to taste the food if requested by security personnel.
- **Essential medicines:** You are permitted to bring essential medicine for your journey in your hand *baggage*. We recommend that you bring a supporting documentation from a qualified medical professional (e.g. prescription or medical certificate).
- **Tax free:** When purchasing liquids, gels and creams from tax free you must pay careful attention to the restrictions of the destination you are travelling to. Restrictions also apply when travelling on connecting flights.

#### [Accommodation information](#)

For the students, accommodation is booked in the University Campus. Everybody will have a single room with bathroom.

Bed linen is not included, so everybody should buy or bring pillow, duvet, sheet and cases. You can take bed linen with yourself in your checked luggage or we can purchase them at IKEA or Jysk, shipping to the campus. But it indicates the problem of leaving it in the campus or taking home after the summer course.

The rooms are equipped with **basic furniture** and **share some common facilities**: kitchen, bathrooms, toilets, storage rooms and laundry. The Arctic Student Organization of Norway provides hardware items in the kitchen: refrigerator, cooker, dining table, chairs, etc.

Students should supply their own kitchen equipment and all bedding equipment including duvet, pillow, and bed linen (sheets and pillow cases). **Please be advised that all shops are closed in Norway during weekends.**

Kitchens are supplied with the following items according to our Norwegian contact:

- stove
- refrigerator
- glass
- cutlery (spoon, knife, fork etc.)

Reserved rooms are the following:

<http://samskipnaden.no/en/bolig/breivika-student-housing>

Information related to students housing are available at

<http://www.sito.no/en/housing>

[http://en.uit.no/utdanning/art?p\\_document\\_id=342464&dim=179016](http://en.uit.no/utdanning/art?p_document_id=342464&dim=179016)

Most important information is highlighted here:

### **I locked myself out. What do I do now?**

During business hours you can contact the Service Centre. Outside opening hours, call the security service at telephone: 97 53 00 06. Here you will get help to unlock the door. The service costs you 400 kroner. **(400 NOK ~ 14000 HUF)**

### **I lost my keys. What do I do now?**

During opening hours you can contact the Service Centre. A new key costs NOK 700,- while a key card costs NOK 250,-. If the key or keycard stops working, the sum will be paid back to the student as long as there is no deliberate destruction of the keys. If the keys are not handed in on the move-out date, the tenant must pay for a set of new keys.

### **What do I do if I have a situation that demands immediate help?**

If this happens during office hours, contact the Service Centre. With issues that cannot wait until the following day, ring security at 975 30 006.

### **Can I smoke in the residence?**

From 1 January, 2013 all student residences are totally non-smoking areas. This applies to all rooms and common areas.

### **Am I as a resident in Student housing insured?**

Our insurance does not include our resident's properties. All private residents must have their own insurance and we strongly urge residents to have their own insurance. If you



are still registered with your parents you may be covered under their insurance, so make sure to check before moving in.

### Health insurance<sup>1</sup>

It is worth to check if the credit card or the bank account includes a valid travel insurance or not, as some financial goods offer extra services like this. If you have valid travel insurance, you need to check the list of the countries where it is acceptable and for what you can use.

If somebody does not have European Health Insurance Card, but it has to be used, how can she or he take the medical attendance?

If someone who is entitled to participate in Hungarian health services cannot show their European Health Insurance Card or the substituting documents in another country while it would be necessary, they have to pay the fees right to the foreign health institute. In this case, the patient can ask for a repayment from its hometown in the first six months after the treatment.

In some countries, patients have to pay nursing fee (co-payment, Zuzahlung, ticket modérateur, forfait journalier), which is legally binding. The amount is different in every country.

### Bodies responsible for health care in the Member States of the European Economic Area:

#### Norway

NAV HTF  
Postboks 5 St. Olavs  
Plass N-0130 OSLO  
[www.trygdeetaten.no](http://www.trygdeetaten.no)

Norway	
General practitioner	117 NOK – office hours 168 NOK – night, weekend
General practitioner at home	170 NOK – office hours 290 NOK – night, weekend
Medical specialist	201 NOK in all cases
Dentist	100 % paid by patient
Blue prescription	36 %, max. 400 NOK for prescription
Other prescription	100 % paid by patient
Hospital	Free
Children under 7 years	Free

<sup>1</sup> [http://www.oep.hu/felso\\_menu/lakossagnak/ellatas\\_kulfoldon/gyik](http://www.oep.hu/felso_menu/lakossagnak/ellatas_kulfoldon/gyik)

<https://helsenorge.no/foreigners-in-norway/health-care-benefits-during-a-temporary-stay-in-norway>  
<https://helfo.no/english/eea-citizens-seeking-to-receive-healthcare-in-norway>

### Suggested equipment for the Summer School:

- Raincoat
- Waterproof footwear
- Warm clothes
- Lab coat
- Safety glasses, gloves
- The accommodation: quilts, pillows, cutlery, plates and cups
- European Health Insurance Card
- Credit card and / or cash (official currency: NOK
- Passport / identity card

### Costs of living in Norway

You can find a list below which is comparing the prices of some basic livelihood article in Norway and Hungary

(Source: [http://www.numbeo.com/cost-of-living/compare\\_cities.jsp?country1=Hungary&country2=Norway&city1=Budapest&city2=Tromso](http://www.numbeo.com/cost-of-living/compare_cities.jsp?country1=Hungary&country2=Norway&city1=Budapest&city2=Tromso))

Milk (regular), (1 liter)	237.44 Ft (6.70 kr)	561.21 Ft (15.83 kr)	+136.35 %
Loaf of Fresh White Bread (500g)	180.27 Ft (5.09 kr)	1,063.35 Ft (30.00 kr)	+489.85 %
Local Cheese (1kg)	1,635.00 Ft (46.13 kr)	4,104.52 Ft (115.80 kr)	+151.04 %
Chicken Breasts (Boneless, Skinless) (1kg)	1,444.57 Ft (40.76 kr)	5,198.59 Ft (146.67 kr)	+259.87 %
Apples (1kg)	279.75 Ft (7.89 kr)	779.79 Ft (22.00 kr)	+178.74 %
Potato (1kg)	186.62 Ft (5.27 kr)	815.23 Ft (23.00 kr)	+336.84 %
Water (1.5 liter bottle)	104.82 Ft (2.96 kr)	921.57 Ft (26.00 kr)	+779.21 %
Bottle of Wine (Mid-Range)	1,000.00 Ft (28.21 kr)	4,962.29 Ft (140.00 kr)	+396.23 %
Domestic Beer (0.5 liter bottle)	239.03 Ft (6.74 kr)	1,063.35 Ft (30.00 kr)	+344.86 %
Imported Beer (0.33 liter bottle)	351.20 Ft (9.91 kr)	1,216.94 Ft (34.33 kr)	+246.51 %
Pack of Cigarettes (Marlboro)	1,020.00 Ft (28.78 kr)	4,111.61 Ft (116.00 kr)	+303.10 %
One-way Ticket (Local Transport)	350.00 Ft (9.87 kr)	1,595.02 Ft (45.00 kr)	+355.72 %
Monthly Pass (Regular Price)	9,500.00 Ft (268.02 kr)	24,811.43 Ft (700.00 kr)	+161.17 %
Taxi Start (Normal Tariff)	450.00 Ft (12.70 kr)	2,835.59 Ft (80.00 kr)	+530.13 %
Taxi 1km (Normal Tariff)	280.00 Ft (7.90 kr)	460.78 Ft (13.00 kr)	+64.57 %

## Administrative obligatories

- The students lead lab report during laboratory practices, the lab reports contain the names of the team members
- Individual report at the end of the summer school about the implementation of professional activities (4-5 pages)
- Student satisfaction questionnaire
- The evaluation of students will be realized through oral examination at the end of the summer school
- The students receive a transcript of records document based on the successful completion of the course
- Signature of participation and attendance list