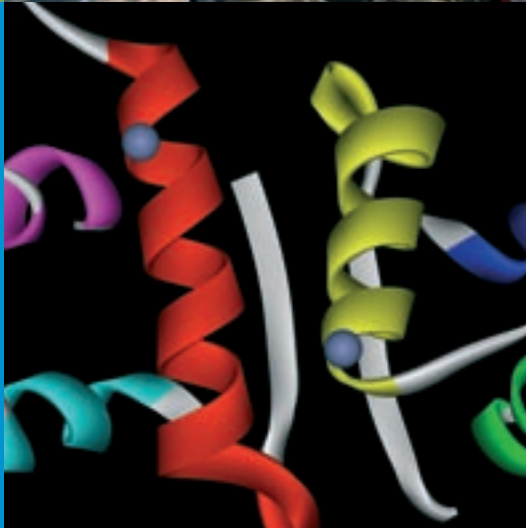
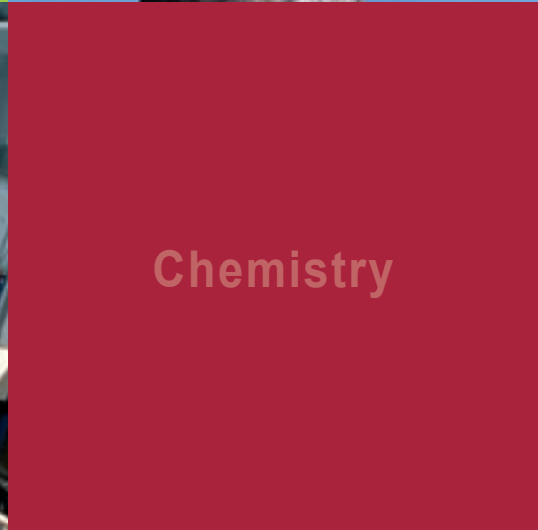




AALBORG UNIVERSITY

Engineering, Science and Medicine

Biotechnology, Chemistry & Environmental Engineering



Designing the Technology of Tomorrow

– at Aalborg University you get the knowledge to do so

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Profile

Aalborg University has approximately 14,000 students and among these, more than 1400 are international students. Our education programs cover a wide range of subjects in the fields of engineering, humanities and social sciences. Aalborg University is one of Denmark's most innovative institutions of higher education and is rapidly expanding. Our candidates are highly recommended by leaders in the Danish industry due to their experience with team- and project work. Our department (Biotechnology, Chemistry and Environmental Engineering) has its own campus some 3 km from the city center and consists of approximately 25 faculty members, 200 students - including 20-30 international students - and 15 PhD students.

Our international study programmes in Biotechnology, Chemistry and Environmental Engineering accept graduate level students; a bachelor degree (3 years of studies) or equivalent is therefore mandatory for entering the programmes. Each programme consists of four semesters (a total of 2 years). The fall semesters start 1st of September and end on 31 January and spring semesters start 1st of February and end on 30 June. Each semester equals 30 ECTS (European Credit Transfer System) units where 1 ECTS represent 30 hours of work (typically 20 hours of classroom work and 10 hours of self study). One semester therefore equals 900 hours of course and project work.

As an international student in Biotechnology, Chemistry or Environmental Engineering at Aalborg University you have the choice of following one, two, three or all four semesters within a given programme.



Studying at Aalborg University



The underlying basis for all studies at Aalborg University is problem based learning. Each semester has a specific theme and consists of a set of courses and a project focusing on the solution of a specific problem related to the semester theme. The project work typically lasts half of the semester. Projects are often carried out in collaboration with a company outside the university. The offered courses provide the knowledge and theory necessary for the specific project theme. Through the project work you get hands-on experience with practical problem solving and learn to plan and manage your project in cooperation with others.



At the semester start, supervisors typically provide a selection of relevant project ideas from which you can choose. The projects will be related to the theme of the semester. In the final semesters, you choose your own project topic.

Team work is essential when working with projects at Aalborg University. You normally work in a group of 3 – 6 students except on the final semesters (Thesis), where you may choose to work alone or with 1 or 2 other students. Each group will get access to our laboratories and be provided with premises where you can do your project or course work and keep your computer and books. You will also get an email account and a mail box.

Each group has 1 or 2 project supervisors who will be guiding you through the project work and make sure the project follows all regulations. In the group, you will produce a project report and present and discuss it at an exam at the end of the semester. Based on the project exam, you will be given an individual grade based on the Danish 7-point grading scale and the ECTS grading scale.

After a long and hard week of studies at Aalborg University, you can relax with your fellow students and meet new people in the student Friday bar (called the O'Sohn bar) which is located on our campus. Here, you can buy drinks, play a variety of games, or just chat with your friends.



Biotechnology

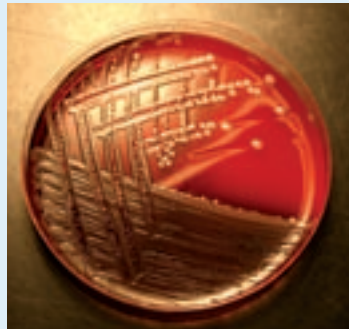


Biotechnology combines biology, chemistry and engineering science to develop new products such as enzymes to improve laundry detergents, textiles and food products. Even classical plant production is now relying on modern biotechnology. Genetic modification is used to produce crops that are resistant to diseases and drought, and to give increased yields with reduced use of pesticides. Therefore, biotechnology is bound to have a very strong influence on human lives and world development.

Are you interested in working with microorganisms and plants, with the development of novel biomolecules, plants, foods, medicines or any other materials? Would you like to work in a rapidly advancing field of science? If so - our International Programme in Biotechnology is made for you

Programme content

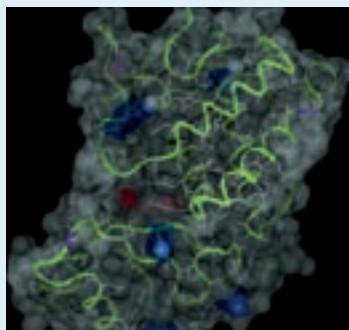
Our International Programme in Biotechnology offers a graduate programme taught in English and is open to students with a B.Sc degree or equivalent in a relevant natural science or engineering discipline. The programme aims to give you thorough understanding of the building blocks of life, especially proteins and DNA, as well as the latest knowledge on the biology and molecular biology of organisms.



Our education will give you the skills and knowledge to grow natural and genetically modified microorganisms and plants, production of specific proteins and other types of bio-molecules, and to use advanced techniques to characterize genes and proteins with respect to composition and function. You will learn to develop new techniques and products based on bacteria, fungi and plants. You will be working with fellow students in our lab facilities but you will also have the opportunity to collaborate with companies outside the university.

Our programme consists of four semesters covering specific topics within the field of biotechnology. You can find an overview of the topics covered and the courses and projects offered in the figure on the next page.

You can enter the programme either as a guest student or as a master



student. As a guest student you may follow one, two, or three semesters of your choice. As a master student, you follow all four semesters consecutively.

Career possibilities

With an education in biotechnology, you might find work in the rapidly developing biotechnology industry or in the food or pharmaceutical industries, inventing new products. If you develop a business concept during your studies, you can also start your own company. If you are interested in research, you may also consider continuing on a PhD programme. Several of our international candidates are currently obtaining their PhD at our department. After you have been awarded the PhD degree, you may continue working in the university field doing research and teaching or you may wish to get a career in the industry field where the demand for PhD's in biotechnology is currently increasing.





Arife Canda Adigüzel, PhD student at Department of Leather Engineering, Ege University, Turkey

To study biotechnology at Aalborg University was one of the best choices that I have ever made. Being in Denmark at Aalborg University, collaborating and working with international researchers and a good team in well equipped scientific laboratories was a great experience. Not only gaining experience for my academic career but also being in Aalborg gave me the opportunity to meet people from all over the world, experience new cultures and traditions, and new ways of life. I am so glad to have experienced the education system at Aalborg University, and I will never forget the warm-hearted persons and smiling faces at the Biotechnology Department.

I had a wonderful time and returned to my country personally and academically more mature and self-confident. But I was sad to leave behind such a nice town and perfect friends with whom I have shared so many pleasant experiences and I would strongly recommend studying at Aalborg University.



Daniel Pleissner, International Graduate School Zittau, Germany

As a student of biotechnology and environmental science at the International Graduate School Zittau (Germany), I'm interested in new eco-friendly industrial processes using enzymes. At the Aalborg University of Aalborg, I found the surroundings to do research in this area for my final thesis. The well equipped laboratories and the competent supervision allowed me to learn a lot for a successful finishing of my study. In addition, the international environment with research scientists from different countries and disciplines gave me the chance to make useful contacts for my further career.



Semester I	FALL	Semester II	SPRING	Semester III	FALL	Semester IV	SPRING
<i>Molecular biology and bioinformatics</i>		<i>Protein science</i>		<i>Master thesis in biotechnology</i>		<i>Thesis continued</i>	
<i>Courses:</i>		<i>Courses:</i>		<i>Activity:</i>		Thesis topic to be chosen by student in collaboration with supervisor (30 ECTS).	
<i>ECTS</i>		<i>ECTS</i>		<i>ECTS</i>			
Plant biotechnology	3.0	Protein chemistry	4.0	Literature study	5.0		
Cell biology, genetics and immunology	4.0	Carbohydrate chemistry	3.0	<i>Project:</i>			
Molecular biology	3.0	Biofilms	3.0	Thesis: Topic to be chosen by student in collaboration with supervisor (25 ECTS)			
Bioinformatics	2.0	Mass spectrometry	3.0				
<i>Projects:</i>		Protein purification	2.0				
Introductory project	3.0	Protein structure	2.0				
Experimental project	15.0	<i>Project:</i>					
		Protein processes	13.0				

Should you have any questions regarding our Biotechnology programme please do not hesitate to contact Associate Professor Niels T. Eriksen, phone: +45 9940 8465, email: nte@bio.aau.dk.

Chemistry



In one way or another, chemistry has a major impact on our daily life; the food we eat, the air we breathe, the clothes we wear, and all the materials we use have a chemical composition that determines their characteristics. Chemistry controls how the food tastes and how healthy it is, how efficient the oxygen uptake in our lungs is, and how our clothes and all our materials can be designed and manufactured. Chemistry also determines how materials function. Almost all our activities involve chemistry and every day we are inventing new chemicals and materials to improve our daily life.

If you are interested in designing new materials, create new chemicals or develop new production processes, you should seriously consider enrolling in our International Programme in Chemistry at Aalborg University.

Programme content

Our International Programme in Chemistry offers a graduate programme taught in English and is open to students with a B.Sc. degree in a relevant natural science or engineering discipline. The programme aims to give you an education that covers many aspects of chemistry and focuses on materials, the molecules that they consist of and their intermolecular interactions.

Our education will give you the tools for designing new materials, improve existing materials and optimising production processes of materials. A new molecule or a chemical component is rarely interesting in itself, but only if it interacts with other well-selected chemical components, or organisms. Focusing on the understanding of intermolecular interactions and on effective synthesis of materials, our education will give you a broad knowledge needed for solving a large number of industrial problems such as development of new polymers and inorganic materials, techniques for separation and 'smart molecules' for controlled release of medicines. Numerous projects offered in our programme are carried out in collaboration with external companies on real life problems.

Our programme consists of four semesters covering specific topics in the field of chemistry. You can find an overview of the topics covered and the courses and projects offered in the figure on the next page.

You may enter the programme either as a guest student or as a master student. As a guest student, you may follow one, two, or three semesters of your choice (typically semesters I, II and III). As a master student, you follow all four semesters consecutively.

Career possibilities

With an education in chemistry you may work in the materials industry, the chemical industry or the medical industry, developing new materials and medicines. You can also start your own company. If you are interested in further scientific studies, you may also consider our PhD programme. Several of our international candidates are currently obtaining their PhD in our department. When you have been awarded your PhD degree, you may continue working at the university doing research and teaching or you may continue your work in the consulting sector or in the industry field where the demand for PhDs is currently increasing.





Daniel Höllen, TU Bergakademie Freiberg, Germany

I had been studying mineralogy at Freiberg University of Mining and Technology for four years, when I decided to go to Aalborg for my Master's Thesis. I wanted to try a new environment, to improve my English and to finish off my studies with a good thesis in an applied field of mineralogy.

The Section of Chemistry at Aalborg University has outstanding research groups in glass science and collaborates closely with the market leader in the field of stone wool, "Rockwool International". I chose the topic "Identification and Quantification of Crystalline Phases in Thermally Treated Stone Wool" as my Master's Thesis. Funding was provided by the ERASMUS program of the European Union and by the German National Academic Foundation.

During the six months I stayed in Denmark, I broadened my horizons and got to know a country which is said to be similar to Germany, but which revealed several new and interesting aspects of life to me. I recommend the Danish "Julefrokost" (Christmas party) and the activities of the Erasmus Student Network.

Now I am working as a scientific assistant at Graz University of Technology in Austria. My stay in Aalborg is still helping me today since it made me more independent than I would have become had I just stayed in Germany. It also enables me to give lectures in English in our international master course "Earth Sciences". The time in Aalborg helped me to grow as a person, e.g. to become more self-confident and adaptable.



Christian Dannesboe, Master of Science in Engineering, Chemistry.

At Aalborg University, team work is very important. You quickly learn that it is much more efficient to work on academic problem solving in a group than by yourself. This working method helps you view the problem from different angles and helps you to come up with solutions to the problem that you might never have worked out on your own.

During your studies you write your project based on a real life problem in co-operation with a company outside the university. In that way, you are always close to your future career, when you study chemistry at Aalborg University.

Through my semester projects, I learned to work in teams and to focus on a common goal as well as study, learn, test, and evaluate potential solutions.

Today, I work at Shell where the knowledge of academic problem solving comes in very handy. I know how to do efficient teamwork. From my time in "the field", I have learned to evaluate data and pass on this information to others in an effective way. It was easy for me to get a job and I chose to work for Shell as it is a global organisation which gives me the possibility to work in many different countries.

Semester I	FALL	Semester II	SPRING	Semester III	FALL	Semester IV	SPRING
Materials technology		Controlled release and functional polymers		Specialization in: Inorganic materials, controlled release, functional polymers and liquid-solid separation.		Thesis	
<i>Courses:</i>	<i>ECTS</i>	<i>Courses:</i>	<i>ECTS</i>	<i>Activity:</i>	<i>ECTS</i>	Thesis topic to be chosen by student in cooperation with supervisor (30 ECTS).	
Materials chemistry	3.0	Supramolecular chemistry	2.0	Literature study	5.0		
Electrochemistry and corrosion	2.0	Carbohydrate chemistry	2.0	<i>Project:</i>			
Materials chemistry	2.0	Polymer chemistry	3.0	Topic to be chosen by student			
Nanomaterials Chemistry	2.0	Polymer synthesis	3.0	(25 ECTS)			
Forming process of materials	2.0	Nanomaterials	2.0				
Industrial process analysis and environmental audit	2.0	<i>Project:</i>					
<i>Projects:</i>		Funcional polymers	18.0				
Mini project	5.0						
Industrial processes	12.0						

Should you have any questions regarding our Chemistry programme please do not hesitate to contact Professor Yuanzheng Yue, phone: +45 9940 8522, email: yy@bio.aau.dk, www.bio.aau.dk.

Environmental Engineering



The growing demand for natural resources such as land, drinking water, food, energy, and raw materials for industrial production is resulting in an ever greater pressure on the world's natural resources. Human activities inevitably produce waste which can harm humans and the environment. An ever growing demand for recreational areas and a clean environment as well as the concern for animal and plant diversity has resulted in an increased effort to protect the environment.

Sustainable development has become a key issue in environmental policy and today's environmental protection aims not only at cleaning up after the pollution facing us today but also at pollution prevention through for instance optimization of energy production, manufacturing and waste management and recycling.

Do you dream of participating in the development of new technology that can help utilize the world's natural resources in the most optimal way without creating environmental problems? Do you want to help create an environment without health risks for humans, develop alternative environmentally friendly products, or participate in the solution of the environmental problems of today? If your answer to any of these questions is yes, then you should enroll in our International Programme in Environmental Engineering at Aalborg University.

Programme content

Our international education in Environmental Engineering offers a graduate programme taught in English and is open to students with a B.Sc. or equivalent in Environmental Engineering, Environmental Science, Chemistry, Biology, Microbiology, Biotechnology, or Environmental Biotechnology. The programme aims to give you the knowledge and skills to provide solutions to the environmental problems facing us today and to prevent new problems in the future.

Our education is based on a unique combination of theoretical courses and practical project work designed to give you not only theoretical knowledge but also hands-on experience

with the solution of real-life problems in collaboration with companies outside the university. You will learn to use biological, chemical and physical knowledge in combination with technical design to handle environmental challenges.

Our programme consists of four semesters covering specific topics within the field of environmental engineering. You can find an overview of the topics covered and the courses and projects offered in the figure on the next page. You can enter the programme either as a guest student or as a master student. As a guest student, you can follow one, two, or three semesters of your choice (typically semesters I, II and III). As a master student, you follow all four semesters consecutively.

Career possibilities

With an education in Environmental Engineering you may become a consulting engineer or you may work in the industry managing environmental issues for instance for a major manufacturer. Many of our candidates also work in the environmental sections of municipalities or counties. You may also start your own company. Several of our candidates have started their own companies within consulting or manufacturing often based on an idea they developed during their studies at Aalborg University. If you are interested in further scientific work, you may also consider our PhD programme. Several of our international candidates are currently working on their PhD in our department. After you have been awarded your PhD degree you may continue working in the university field doing research and teaching or you can continue your work in consulting or industry field where the demand for PhD's is currently increasing.



Charoenpong Punsiri (right), Thailand

I chose to study at Aalborg University because it is a well-known university in the field of Environmental Engineering and Sustainable Management and Development. Also, learning is based on the students working in groups, which meant that I got knowledge and learned to use it in practice in collaboration with fellow students.

During my stay in Aalborg, I gained both technical knowledge and self-confidence. I also gained a lot in terms of life experience. The Danish people are friendly, and the Danish community is very safe and has a quiet and peaceful atmosphere. The Danes have a convenient public transport system and the country and especially the air is very clean.

Currently, I am working as an Operation Engineer with Cargill, an American Agriculture-Industrial company. I work for the Business unit of Environmental Finance and I am supervising Biogas projects for renewable energy and clean Development Mechanism (CDM) projects for Certified Emission Reduction (CER). In addition to technical support I also perform preliminary screening of potential new projects in terms of techniques, cost expenditure and biogas potential. During my education at Aalborg University, I learned to analyze problems in order to get the proper solution using my acquired knowledge and experience. In my job I use these skills to solve problems connected with different projects. Also, the presentation skills I learned in Aalborg I use to present knowledge, ideas and solutions to others.



Elise Rudelle, France, currently PhD student at Aalborg University

I had already been working a year in Denmark when I decided to start a Master degree in Environmental Engineering. It was both a challenge to begin a new education and a great opportunity to focus on environmental issues, which are among the major concerns nowadays.

Studying at Aalborg University was a new experience, as the way of learning is really different from my previous university. We were studying in groups, working on different projects. The group work is a perfect training to begin one's working life; and it is both fun and efficient. Responsibilities were shared among group members and all results and divergences were discussed. Concerning the projects, we were always confronted with real-life situations, and it was really motivating to match the theoretical part to the practical one. Having the possibility to combine the field, laboratory analyses and modeling to find a solution is very exciting.

Recently I began a PhD in the Sewer Processes and Network group. The research area is actually the same as during my Master's thesis and focuses on anaerobic biological processes in sewer systems.

Semester I	FALL	Semester II	SPRING	Semester III	FALL	Semester IV	SPRING
Urban soil, groundwater technology and sustainable waste management		Advanced wastewater treatment and quality of receiving waters		Topics in environmental engineering		Thesis	
<i>Courses:</i> ECTS		<i>Courses:</i> ECTS		<i>Courses:</i> Course based on student's choice of project topic (2.0 ECTS).		Thesis topic to be chosen by student in cooperation with supervisor (30 ECTS).	
Solid waste technology	2.0	Wastewater treatment	3.0	<i>Project:</i> Project topic chosen by student within environmental engineering (28 ECTS). Topics include Sustainable waste management, urban ecology, polluted soil management, receiving waters, wastewater treatment, modeling and more.			
Geostatistics	1.5	Toxicology and hygiene	3.0				
Tools in hydrology	2.0	Marine recipients	3.0				
Transport and reaction in soils	2.0	Time series analyses	1.0				
Soil physics	2.0	Fluid dynamics	2.0				
Groundwater		Entrepreneurship	2.0				
Flow modeling	2.5	Computational Fluid dynamics	1.0				
<i>Projects:</i> Urban Waste management 3.0 Soil pollution engineering 15.0		<i>Project:</i> Wastewater treatment and design 15.0					

Should you have any questions regarding our Environmental Engineering programme, please do not hesitate to contact Associate Professor Tjalf G. Poulsen, phone: +45 9940 9938, email: tgp@bio.aau.dk.

Application and admission

Admission and fees

Our international Biotechnology, Chemistry, and Environmental Engineering programmes are open to students with a relevant bachelor degree or equivalent. Students should have a knowledge of written and spoken English as documented by the IELTS test with a score of at least 6.5, or English as the documented educational language in previous studies. If you are from an EU/EEA member state you may study at Aalborg University free of charge. Otherwise there is a tuition fee of DKK 100,000 (13,300 Euro) per year.

Application

Our official application deadlines, if you require a visa to enter Denmark, are March 15, when enrolling in the fall semester and August 15, when enrolling in the spring semester. If you do not require a visa, the application deadlines are May 1 enrolling in fall and October 1 enrolling in spring. You may already have applied for funding from the Erasmus programme or elsewhere and not know if the funding will be granted before the application deadline. In that case, we encourage you to apply for admission anyway and state in your application that you anticipate funding. Should the funding not be granted, you always



have the choice of withdrawing your application. The application forms can be found at <http://studyguide.aau.dk/apply>.

Sources of funding

If you are from a university which has a bilateral Erasmus agreement with our department, you may apply for Erasmus funding which will cover the majority of your expenses. You can also take a part-time job and earn extra money. Popular part time jobs are bar keeper, waiter, newspaper deliverer etc. Occasionally, there will be job openings such as research assistant in our department, and we try to hire our international students for these jobs.

The university has a very limited number of scholarships that are allocated to students from outside the European Union. These scholarships will be offered to the most



qualified applicants, and you may indicate on your application whether you want to be considered for these when you apply for admission at Aalborg University.

Some countries also have special funding programs for students going abroad. Consult with your present university and funding agencies to find out if you have such an option.



Living in Aalborg

Aalborg is located in the northern part of Denmark and is with approximately 150,000 inhabitants the fourth-largest city in the country. With 14,000 students, Aalborg is according to Danish standards a relatively large university town. Most Danes speak English and other languages such as German, French, or Spanish, which makes it easy to socialize with the local people. Aalborg offers a wide selection of cultural activities such as concerts, movies, theater, art, a very large range of sports clubs and societies. Aalborg also features the largest carnival in Northern Europe which every year in May attracts more than 25,000 people. If you are into partying you must try the famous Jomfru Ane Gade, a street that boasts an impressive choice of bars and discos. In the summer, you may consider visiting the white beaches at the North Sea



coast where tourists from all over Europe come to enjoy the fantastic scenery.

Housing prices in Aalborg are generally lower than in other Danish university cities and you can reserve a place to stay through our International Office (email: international@adm.aau.dk) when you have been admitted. Aalborg has a good selection of second hand stores where you can buy everything from clothing and kitchen ware to furniture at very low prices. The city also has several stores selling ethnic food, and a farmers market is open every Wednesday and Saturday. You can learn more about living in Aalborg by visiting: <http://www.visitaalborg.com>.

Living expenses

Living costs in Denmark are in the higher end of the range among European countries. The actual costs will of course depend on your lifestyle, the choice of accommodation, and your clothes and food preferences. Typical annual living costs (in Euro) in the Aalborg area are given in the table below. A good way to keep the expenses down is to share a flat with some fellow students and to shop at the second hand stores for basic clothes, cooking gear and furniture etc.

Expense	Living costs (Euro per year)
Accommodation (renting a room)	2800 – 3500
Accommodation (renting a flat)	3700 – 6500
Food and household	1600 – 3300
Clothing and personal care	700 – 900
Local transportation	300 – 500
Books	100 – 300
Other costs (social life etc.)	700 – 900

Contact *Information*

If you want additional information please contact any of the following persons:



**Departmental coordinator,
International Relations:**
Associate Professor
Tjalfe G. Poulsen,
phone +45 9940 9938,
email: tgp@bio.aau.dk.



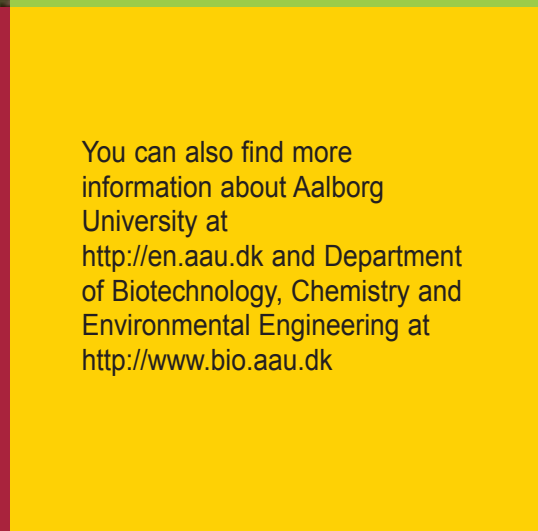
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You can also find more
information about Aalborg
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of Biotechnology, Chemistry and
Environmental Engineering at
<http://www.bio.aau.dk>