

**PROPOSAL TO SPLIT
SCIENCE AND TECHNOLOGY**

Proposal to split Science and Technology

Background and vision

Science and Technology (ST) is a strong and well-run scientific-technical faculty. The faculty was formed in 2011 through a merger between the Faculty of Science, the Danish Institute of Agricultural Sciences and the National Environmental Research Institute, and has since undergone substantial development. The faculty carries out internationally recognised, high-quality research, its degree programmes send graduates out into the world with excellent academic qualifications, and it provides indispensable assistance to decision-makers within public sector consultancy.

In recent years, the university and ST have made significant investments in areas that are crucial to the development of society. The merger with the Aarhus University School of Engineering in 2012 enabled increased collaboration in the engineering field, further enhanced in 2016 when the university embarked on an ambitious expansion with the Engineering 2025 master plan, which was designed to meet society's demand for more engineering graduates and technical research. The university then decided in 2017 to boost research and degree programmes within **digitalisation** with a major initiative aimed at doubling the number of graduates in this area by 2023.

Finally, based on the vision of helping to solve societal challenges, ST has strengthened interdisciplinary collaboration with the establishment of seven thematic centres where researchers from different departments work together to produce internationally recognised research on water technology, circular bioeconomy, food, digitalisation, climate, materials science and the Arctic.

These developments at ST have resulted in significant growth in student enrolment and external funding over the last few years and, in light of current plans in the fields of engineering and digitalisation, this growth is expected to continue for a number of years.

Arguments in support of splitting the faculty

In connection with the drafting of a new strategy for the university that will take effect in 2020, the senior management team has decided that the possibility of splitting the faculty in two new, equal faculties should be considered carefully. The decision should be viewed in the light of the following arguments:

Development of the two faculties with greater managerial strength

The current ST comprises twelve departments, one department-like centre, a school of engineering, two national centres and a number of other units. It is a very large faculty with a great diversity of units. The ambitious plans for expansion of engineering and digitalisation programmes in the coming years, and the need to strengthen public sector consultancy at a time when these contracts may become to be subject to competitive tendering, mean that there is a particularly strong need for managerial focus and presence. The leadership team at the faculty, the faculty management team, currently has 24 members. It is clear that such a large management group cannot easily operate as a unified team, and there is a proven risk of significant issues not being addressed in a satisfactory way, either because they fall outside the general focus, or because the necessary leadership resources cannot be made available.

Increasing the visibility of engineering

As described above, engineering and technology are growing in importance at Aarhus University. This development began with the first MSc programmes in engineering at the university in 2003 and was boosted by the merger with the Aarhus University School of Engineering in 2012. The process continued with the ambitious expansion programme from 2016 onwards. Since these initiatives were launched, ST has followed up by employing more researchers/teachers and by recruiting students, and has so far taken on 49 new academic staff members and increased the annual intake of new students by 300. In 2019, the university will be inviting applications for five new MSc programmes in engineering and a new digitalisation programme.

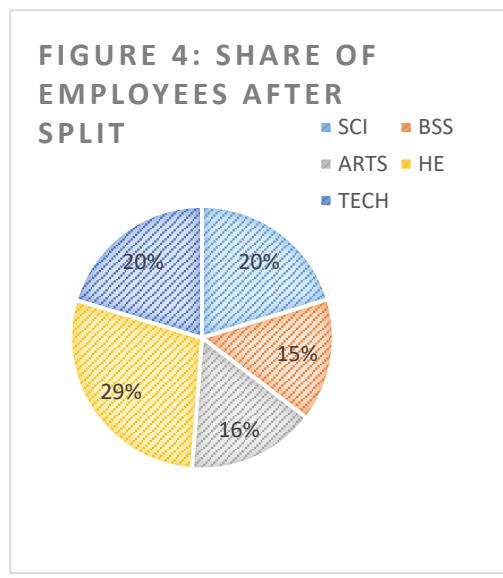
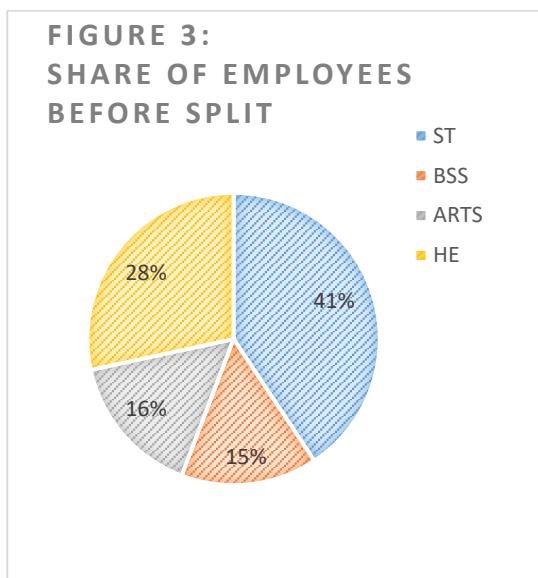
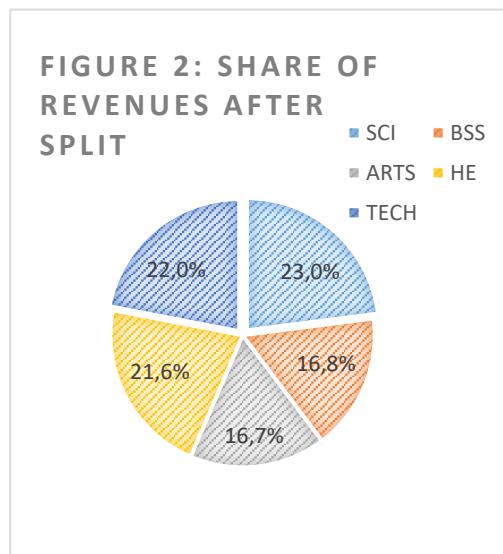
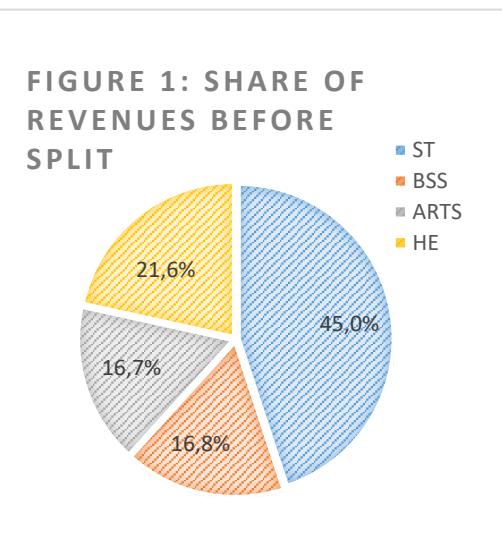
To safeguard the continued development of this initiative and to reap the rewards, the time has come to establish a separate faculty with a clearer focus on this area. This will strengthen the management focus on realising the ambitious growth plans. At the same time, an independent faculty will be able to ensure a clearer profile to external stakeholders, including future students.

The formation of two new, equal faculties – which it is proposed to name ‘the Faculty of Engineering and Life Sciences’ and ‘the Faculty of Science’ – will provide both with greater management strength. It will create two smaller and more dynamic management teams, and the two new faculties will each be able to develop and hone their own unique profiles. The Faculty of Engineering and Life Sciences will be well placed to make a significant contribution to tackling major societal challenges, including the whole sustainability issue. This can be achieved through research, technological development and science advice to politicians, government agencies and institutions and companies. The Faculty of Science will have a strong base in the development of basic science within the natural sciences, mathematics and computer science, but these advances will increasingly be made in close collaboration with the other faculties and external stakeholders. In the coming years, there is great potential for increasing collaboration with the Faculty of Health,

and particularly for continuing the close cooperation with the groups in the Faculty of Engineering and Life Sciences.

Size of ST compared to the other faculties

ST is by far the largest faculty at the university. As shown in Figure 1, ST currently accounts for 45% of the university's total revenues.



With the growth plans for the engineering field, this share is expected to increase in the coming years. As a result, the imbalance between faculties will continue to grow if the current model is retained. The proposed split of ST means that the university will move from four to five faculties. The scientific/technical area will then be represented by two deans rather than one, so the area will be represented in the university's senior management in proportion to its size. The split means that there will be five faculties at the university of roughly equal size measured in terms of revenue (see Figures 1 and 2) and number of employees (Figures 3 and 4). Creating a better balance between the faculties and hence a more equal representation in the senior management team will also provide a good starting point to promote balanced cross-faculty collaboration at the university.

Process

The current model for the split has emerged from in-depth discussions between the rector, the Dean's Office and department heads. First, the rector conducted a series of individual interviews with the faculty management team. Based on these discussions, the rector presented four models for splitting ST to the faculty management team. The faculty management team supported continued work with one of the models. The rector then presented the model to the employees at ST on a tour of all departments of the faculty in March 2019. Observations and comments on the model from the staff were noted and picked up in further discussions between the rector and the faculty management team with a view to drawing up the present proposal for splitting the faculty.

The plan is for the proposal of splitting ST to be presented to the board and then sent out for consultation to the whole of the university, with a final decision being taken by the board on 7 June 2019. If the board endorses the proposal at that time, the two dean positions will be advertised soon after, with an expected start date of 1 January 2020. The two new faculties will be established from 1 January 2020, when the two new deans take up their positions. A decision will also be taken by 1 January 2020 on the management support structure and the deans' offices and secretariats. This decision will be taken by the rector in consultation with the relevant parties, including the ST faculty management team.

When the academic split has been finalised, working groups will be set up during the autumn to submit proposals for administrative support for the two new faculties. 2020 will be a transitional year for administrative support for the two faculties, after which we may expect a final decision and implementation of the administrative support functions in the new faculties.

Principles for splitting the faculty

The fundamental principle behind the proposed split has been that, as far as possible, the two new faculties should be **equal** in terms of finances, staff and educational responsibilities, both in order to create a balance between the two new faculties and to maintain a balance with the other

faculties at the university. It was also crucial that the split should take account of the tasks to be performed and respect disciplinary identities and the interplay between them.

Currently, ST consists of a number of strong and well-run departments. In connection with the split, it is therefore essential to **maintain the current departmental structure**, so individual departments and units remain intact. The staff will then retain the same duties after the split and will continue to report to their heads of department as they do today. The one exception is the Department of Bioscience, which currently has two separate budgets and two heads of department reflecting the breakdown of tasks, and will split under the proposal into two separate units. It is also under consideration, where the Centre for Quantitative Genetics and Genomics and the section for Crop Genetics and Biotechnology within the Department of Molecular Biology and Genetics should be placed in the future structure. A final decision on the placement of this group will be made before final approval of the division of ST by the board in June.

In 2019, ST introduced a faculty-wide **financial model** to create more transparency regarding finances, and to provide incentives to enhance the quality of the core activities. The model includes elements such as the allocation of basic funds and contract funding, charging in respect of teaching and exams, allocations for administration, rent etc., and agreements on settlement. It will be the starting point that these principles are maintained in the economic division of the two faculties (see also section on finances on page 9). An analysis group will be working on how to effect the financial split into the two faculties, reporting back in June 2019. This work includes ensuring that the split does not create barriers to future collaboration between the new faculties.

It is important that the financial situation is **stabilised** when the faculty is split. The work of the analysis group on a proposal for the financial division of the faculty will therefore be based on the budgets for 2019 and the budget estimates for 2020 and 2021, all of which were drawn up in 2018. Following the decision to split the faculty, the analysis group's proposal for dividing the finances will be incorporated into the processes that are normally carried out to determine budgets at the university. This means that after the decision on the split, budgets for 2020 will be determined in the autumn of 2019.

There will be increased costs related to the transition from one to two faculties. The two new faculties must cover these costs within a reasonable time, but there will be scope for negotiation with the senior management team with regard to some of these costs if this should be necessary in the transitional phase. The finance analysis group is expected to come up with an estimate of the increased costs, which will be included in the proposal to the board in June 2019.

In connection with the adoption of the Campus 2.0 plan, a decision was taken to relocate the research and teaching programmes from Årslev, Silkeborg and Kalø to Aarhus. The plan also includes the relocation of the Aarhus University School of Engineering, the Department of Engineering and the Department of Molecular Biology and Genetics. These relocation plans are academically well founded and will be pursued regardless of the split of the faculty.

Proposed new organisation

It is proposed to split ST into two equal faculties, with due regard for the tasks to be performed and respect for disciplinary identities and the interplay between them, and with a result of two faculties of comparable size after the split. It is proposed to split the existing faculty into a Faculty of Engineering and Life Sciences and a Faculty of Science. The distribution of the existing departments/department-like centres is shown in Figure 5 below.

After the proposed split, the two faculties will be of comparable size in terms of total revenues, number of employees and student FTEs; see Table 1.

Figure 5: Split into two faculties: Faculty of Engineering and Life Sciences (green) and Faculty of Science (red)

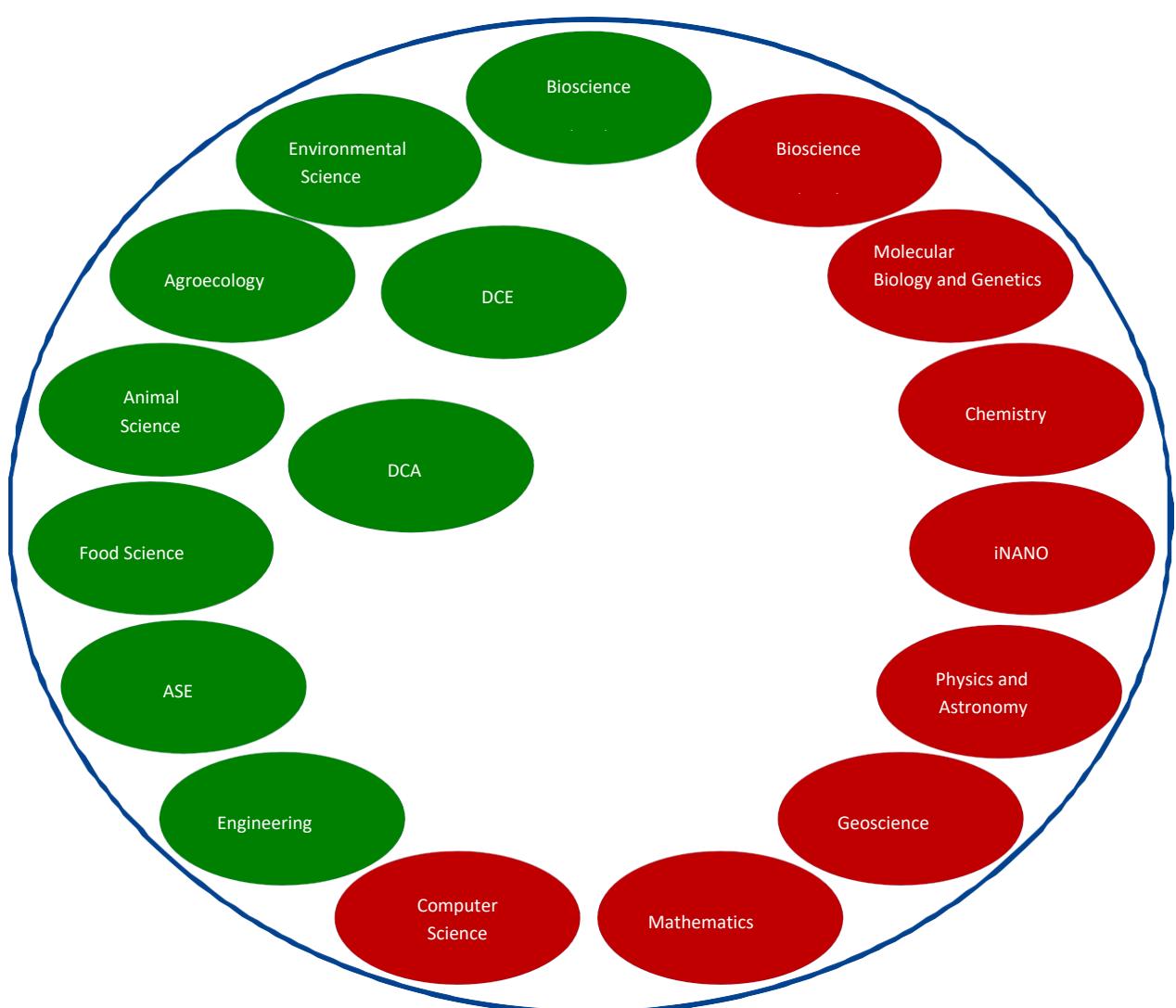


Table 1: Key figures for the two new faculties

	Faculty of Engineering and Life Sciences	Faculty of Science
Total revenues (B2019 in DKK billions)	1.42	1.49
Total staff	1366	1363
Academic staff	679	655
Student FTEs	2460	2479
Departments and department-like units (current names)	Department of Agroecology Department of Bioscience (RKS) Department of Animal Science Department of Environmental Science Department of Food Science Department of Engineering Aarhus University School of Engineering (ASE) DCA - Danish Centre for Food and Agriculture DCE - Danish Centre for Environment and Energy	Department of Bioscience (AAR) Department of Computer Science Department of Physics and Astronomy Department of Geoscience Department of Chemistry Department of Mathematics Interdisciplinary Nanoscience Centre (iNANO) Department of Molecular Biology and Genetics
Other units and shared functions	STLL - ST Learning Lab (ICROFS - International Centre for Research in Organic Food Systems)	BIRC - Centre for Bioinformatics The Science Museums Training in entrepreneurship Public lectures Open Science

Faculty of Engineering and Life Sciences

Composition of the faculty

The faculty will undertake research and teaching within engineering, agroecology, food, animal science and environmental science.

The faculty will also be responsible for public sector consultancy under contracts entered into with the Ministry of Environment and Food. Public sector consultancy will be coordinated and quality-assured as before by the DCA (Danish Centre for Food and Agriculture) and the DCE (Danish Centre for Environment and Energy). The DCA and DCE will be based within the faculty.

Potential and opportunities

With the proposed composition, the faculty will gain unique potential within technological development, innovation, sustainable solutions, cooperation with companies and consultancy for government agencies and institutions and companies. With a more focused and involved faculty management team, the faculty will have more opportunities to realise this potential. The faculty will have an obligation to pursue and expand the existing synergies with the Faculty of Science and the other faculties at the university.

Management and administration

The faculty will be headed by a dean, with powers delegated by the rector. To assist the dean in the work of running the faculty, a faculty management team will be established consisting of the heads of the six departments, the head of the School of Engineering, the heads of the two national centres and 2-3 vice-deans. The chief adviser and the administrative centre manager will attend faculty management meetings with observer status.

The dean will be assisted in the day-to-day management by 2-3 vice-deans. There will also be a chief adviser and a secretariat to assist the dean in day-to-day management. The dean's office and secretariat will be located in Aarhus.

Like the other faculties at the university, and in accordance with the university's by-laws, an academic council, a liaison committee (FSU) and an occupational health and safety committee (FAMU) will be established within the faculty. After 1 January 2020, the dean will make a recommendation, for decision by the rector, on whether to appoint an advisory board at the faculty along with one or more employer panels, cf. the university's by-laws. It has to be considered whether the faculty should establish an independent graduate school with an associated PhD committee or whether the existing graduate school should continue as a shared unit for the two faculties.

Note also that it is proposed to retain a joint board of studies for the science degree programmes, the Aarhus School of Science (ASOS), to be placed within the Faculty of Science.

The faculty may consider retaining the existing structure with the establishment of a research committee, a business committee, a public sector consultancy committee, a board of studies and a forum for recruiting students at the faculty level.

All departments have established departmental forums that will continue in the new organisation.

Table 2: Revenues at the Faculty of Engineering and Life Sciences (2019 budget in DKK)

	Total revenues	External funding	Public sector consultancy	Teaching
Department of Agroecology	247,722,711	116,715,580	82,289,576	10,215,963
Department of Bioscience (RKS)	242,018,519	116,027,097	59,394,751	0
Department of Animal Science	207,447,104	76,299,134	85,557,648	5,103,450
Department of Environmental Science	107,815,969	55,481,967	34,879,526	0
Department of Food Science	87,964,337	35,815,697	34,911,060	3,611,791
Department of Engineering	242,565,754	114,798,769	15,759,950	52,623,341
Aarhus University School of Engineering (ASE)	237,261,693	1,364,800	0	228,801,894
DCA	19,635,717	1,014,256	18,475,343	0
DCE	23,392,311	427,844	21,014,467	0
ICROFS	7,379,762	5,463,771	1,915,991	0
Total	1,423,203,876	523,408,915	354,198,313	300,356,440

Faculty of Science

Composition of the faculty

The faculty will undertake research and teaching in the fields of biology, computer science, physics/astronomy, geoscience, chemistry, mathematics, molecular biology and nanoscience. The

Bioinformatics Research Centre (BIRC) will also be placed within the faculty. The faculty will also bear the main responsibility for the Science Museums and the public lectures on science. There are common functions established within ST for Open Science and training in entrepreneurship. It is proposed that these shared functions should be located at this faculty.

Potential and opportunities

The faculty will gain a clearer profile with the proposed composition, focusing on basic science and its application in the fields of natural sciences, mathematics and computer science, and dissemination of scientific advances and discoveries to the general public. With a more focused management structure, the faculty will be even better placed to develop its strong academic disciplines and their interaction with other programmes.

With strong natural science disciplines, the faculty has the potential to contribute to tackling major societal challenges, including sustainability. The faculty will therefore maintain and expand existing collaborations with the new Faculty of Engineering and Life Sciences while developing cooperation with the other faculties, particularly Health.

Management and administration

The faculty will be headed by a dean, with powers delegated by the rector. To assist the dean in the work of running the faculty, a faculty management team will be established consisting of the heads of the seven departments, the department-like centre (iNANO) and 2-3 vice-deans. The chief adviser and the administrative centre manager will attend faculty management meetings with observer status.

The dean will be assisted by 2-3 vice-deans, and there will also be a chief adviser and a secretariat to assist in the day-to-day management of the faculty. The dean's office and secretariat will be located in Aarhus.

Like the other faculties at the university, and in accordance with the university's by-laws, an academic council, a liaison committee (FSU) and an occupational health and safety committee (FAMU) will be established within the faculty. The dean will make a recommendation, for decision by the rector, on whether to appoint an advisory board for the faculty, along with one or more employer panels; see by-laws.

It has to be considered whether the faculty should establish an independent graduate school with associated PhD committee or whether the existing graduate school should continue as a shared unit for the two faculties.

Note also that it is proposed to retain a joint board of studies for the science degree programmes, the Aarhus School of Science (ASOS), to be placed within the Faculty of Science.

The faculty may consider retaining the existing structure with the establishment of a research committee, a business committee, a board of studies and a forum for recruitment at the faculty level.

All departments have established departmental forums which will continue in the new organisation.

Table 3: Revenues at the Faculty of Science (2019 budget in DKK)

	Total revenues	External funding	Public sector consultancy	Teaching
Department of Bioscience (AAR)	213,016,845	99,227,857	0	37,959,429
Department of Computer Science	172,236,630	49,562,098	0	46,484,288
Department of Physics and Astronomy	234,293,970	123,849,835	0	21,801,578
Department of Geoscience	96,282,851	53,844,644	0	11,627,503
Department of Chemistry	219,497,128	119,655,609	0	20,569,251
Department of Mathematics	101,669,331	26,667,013	0	27,425,250
Interdisciplinary Nanoscience Centre (iNANO)	102,105,531	54,117,136	0	11,381,364
Department of Molecular Biology and Genetics	332,153,442	171,472,014	22,562,287	38,224,868
BIRC	12,210,777	7,012,642	0	2,210,365
The Science Museums	4,965,898	620,400	0	0
Total	1,488,432,405	706,029,247	22,562,287	217,683,895

Finances

A working group has been set up to analyse ST's finances and make proposals for splitting them between the two new faculties. Its work will be based on the new financial model adopted within ST in 2019. In the new financial model, internal allocation principles have been agreed for revenues, expenses and internal contributions. The working group will apply these principles to its work on a proposal for splitting the finances between the two faculties. The working group must also take care to ensure that the financial split does not contribute to the creation of barriers to collaboration across the two faculties.

A key element of the transition to the new financial model for ST in 2019 has been to ensure that the financial room for manoeuvre of the departments should not be affected. As far as possible, this principle should be preserved in the transition to the two new faculties, and the working group's analysis must consider whether there is a need for a transitional phase in connection with splitting the finances.

There is a shared strategic funding pool established within ST that has been used, among other things, to finance seven interdisciplinary thematic centres. The seven thematic centres are to be retained with the agreed financing after the division of the faculty. The centres will be organisationally linked to the faculty where their centre director is employed. It is also important for each faculty to set aside a small pool for hedging purposes and to allow for co-financing in the case of major strategic research applications.

The finance working group will estimate the costs of the split and make a proposal for how the costs should be funded. It should be noted that the administrative costs of the split can only be finally determined after the administrative analysis work in the autumn of 2019.

In recent years, the administrative centre at ST has been ordered to make savings of 2%, along with the university's other administrative centres. However, the level of activity has increased as a result of, among other things, the engineering and digitization initiatives. This has placed great pressure on administrative support for the academic environments and has created challenges for the centre. Compared with the other faculties at AU, the administrative centre at ST is also undersized. So, regardless of the split of the faculty, we may expect to see increased costs in the administrative area. The need for increased administrative support is included in the administrative working groups' analyses.

Education

ST offers 13 Bachelor of Engineering programmes, 14 Bachelor's degree programmes, 20 Master's degree programmes and 11 degree programmes in Civil Engineering (5 BSc and 6 MSc). An additional BSc in Civil Engineering and another Master's degree programme are expected to open in 2020.

The distribution of the degree programmes between the two new faculties is shown in Table 4.

The responsibility for the individual degree programmes is based on a single department/unit, but for a number of degree programmes at ST, there are multiple departments contributing to the individual programme. Their contributions to the programme involve the provision of one or more courses, but may also take the form of teaching on a course offered by the department responsible. For example, the Bachelor's degree in biology includes the courses Calculus Alpha and Introductory Statistics and Data Analysis taught by researchers from the Department of Mathematics, while the teaching in basic general and organic chemistry is provided by staff from the Department of Chemistry. This distribution of the courses reflects a desire for the researchers who are active in the relevant discipline to provide the teaching.

The breakdown of responsibility for teaching is laid down in the academic regulations for the programmes. In order to avoid counterproductive competition for teaching roles, the principle for assigning responsibility for the teaching will be retained, and the departments must continue working together on the degree programmes after the division of the faculty. The agreements on the course finances laid down in the new finance model should also be observed.

On this basis, it is proposed to establish a forum for programme coordination across the two new faculties, where the two vice-deans for education and the directors of studies meet at least four times a year to ensure coordination of education, teaching and exams across the two faculties.

Table 4: Distribution of degree programmes between the two faculties

	Faculty of Engineering and Life Sciences	Faculty of Science
Bachelor's degree programmes	Agrobiology Biotechnology Civil and Architectural Engineering Computer Engineering Electrical Engineering Chemical Engineering Mechanical Engineering (expected to start in 2020)	Biology Computer Science Data Science Physics Geoscience IT Product Development Chemistry Mathematics Mathematics-Economics Medical Chemistry Molecular Medicine Molecular Biology Nanoscience
Bachelor of Engineering degree programmes	Biotechnology Civil and Structural Engineering Architectural Engineering Electrical Power Technology (Aarhus) Electrical Power Technology (Herning) Electronic Engineering (Aarhus) Electronic Engineering (Herning) Information Technology Chemical Engineering Chemical Engineering and Food Technology Mechanical Engineering (Aarhus) Mechanical Engineering (Herning) Healthcare Technology	
Master's degree programmes	Agro-Environmental Management Agrobiology Molecular Nutrition and Food Technology Biomedical Engineering/Technology Civil and Architectural Engineering Computer Engineering Electrical Engineering Biotechnology and Chemical Engineering Mechanical Engineering Food and Health (China, starting 2020)	Astronomy Bioinformatics Biology Computer Science Physics Geophysics Geology IT Product Development Chemistry Mathematics Mathematics-Economics Medical Chemistry Molecular Medicine Molecular Biology Nanoscience Neuroscience and Neuroimaging* Statistics Science Studies
Diploma programmes		Diploma in Information Technology
Professional Master's programmes	Master of the assessment of animal welfare in primary production	Master of IT Master of science teaching Flexible Master's programme

* =Joint degree programmes with Health

Three boards of studies have been set up at ST, with a remit to organise, implement and develop the teaching within the study programmes covered by each board. For now, it is proposed that the current boards should be retained with the following allocation to the two faculties. It should be noted that one board of studies, ASOS, covers degree programmes in both of the new faculties. The two new deans may recommend a different board of studies structure to the rector.

Faculty of Science:

- Board of studies for the science programmes: Aarhus School of Science (ASOS)
- Board of studies for Molecular Medicine (shared with Health):

Faculty of Engineering and Life Sciences:

- Board of studies for MSc and BSc programmes in Engineering: Aarhus University School of Engineering (ASE)

In order to have close dialogue with employers, students and teachers, ST has established a total of 16 employer panels. Each employer panel has been set up in conjunction with a degree programme or a small group of degree programmes. According to the proposed division of responsibility for the programmes, the employer panels could be distributed in the same way between the two faculties without any problems. The 16 employer panels can therefore be retained as they are. It will be up to the two deans to decide whether there is a need to change the employer panels.

The current ST Learning Lab (STLL) will be retained as a shared unit for the two new faculties and will be organisationally located in the Faculty of Engineering and Life Sciences.

Interdisciplinary research collaboration

Since the faculty was formed, ST has worked to realise the potential for academic synergies across science, engineering and sector-oriented research.

Most recently, seven thematic centres were established in 2018, where specialists in the faculty's main academic strengths come together to find new solutions within water technology, circular bioeconomics, food, digitalisation, climate, materials science and the Arctic. This cooperation has proved fruitful, and it will continue in the coming years across the two new faculties, where efforts will also be made to further strengthen cooperation with the three other faculties at the university.

As described above, the joint financial model will be retained across the two new faculties. This will prevent the creation of barriers to interdisciplinary research collaboration across the new faculty boundaries.

The thematic centres are headed by a centre director, who currently reports to a board consisting of the dean and the heads of department and center involved. In future, it is proposed that both

deans should be represented on the boards, as with DANDRITE, for example, which cuts across ST and Health.

Administration

The final proposal for splitting ST will be submitted for approval at the board meeting on 7 June 2019. An analysis of administrative support for the two faculties will then be initiated, to be completed by December 2019. An analysis group will be organised for each of the areas of finance, HR, IT, studies administration, building operations and maintenance and communication, to come up with proposals for future policies/guidelines, including whether the area in question should still be organised as a shared function for the two faculties or divided between two separate faculty administrative centres. Heads of department secretariats will be involved in the analysis work. The analysis work should result in proposals for how the administration should be organised for the two new faculties, and in an analysis of whether increased levels administrative support will be needed.

2020 will be a transitional year for the administration, during which the two faculties will be run by a joint unit focusing on reliable day-to-day operations and preparation for the transition to the chosen future administrative organisation.

Implementation

The division of ST into the two new faculties is expected to take effect as of 1 January 2020, when the two new deans will take up their posts. This means that the heads of department, centre directors and administrative centre managers will begin reporting to the new deans as of 1 January 2020.

For the administrative centre, 2020 will be a transitional year. The centre will serve both faculties with shared administrative processes, while processes are established and work starts on implementing the decisions taken concerning the administration on the basis of the analysis work done in the autumn of 2019. It is assumed that the two deans and the current administrative centre manager will have regular discussions on administrative support during the transitional period, preferably formalised with at least one meeting per month.

A faculty management team will be established at each faculty with the same tasks as the existing faculty management team at ST, such as implementing strategy, deciding on budgets etc. The deans' offices and secretariats will also be established as of 1 January 2020. The ST communications department will also prepare new websites for the two faculties, which will be launched as of 1 January 2020.

Challenges associated with the split

There will inevitably be a number of challenges associated with splitting ST into two faculties. A joint financial model was introduced at ST in 2019, and there is a need to clarify how the finances will be split between the two faculties. A working group will therefore be established to come up with proposals as to how this can be most effectively and fairly achieved. There may also be costs associated with the split, which the finance working group will also analyse. There is a joint graduate school at ST with joint rules. It must be considered whether the graduate school should be maintained in its current configuration after the proposed split of the faculty. In relation to education, joint rules for settlement should provide for continued close cooperation. There will also be a coordination forum at the management level to ensure close collaboration on the degree programmes, and teaching staff will continue to teach courses across faculty boundaries, e.g. in maths.

Appendix – description of the departments in the two new faculties

FACULTY OF ENGINEERING AND LIFE SCIENCES

Department of Agroecology / Institut for Agroøkologi

Research groups

Production systems; integrated geographical and social studies; soil and nutrients; Agrohydrology and water quality; soil physics and soil resources; climate and bioenergy; weed ecology; plant pathology and entomology; pesticide research and environmental chemistry; pests; and crop ecology and product quality.

Facilities

Laboratories, climate chambers, semi-field stations, and trial sites in various parts of the country.

Public sector consultancy

The department contributes to research-based public sector consultancy in the fields of environment and bioenergy, organic agriculture, climate and natural resources, plants and food quality.

Education

The department is responsible for the Bachelor's programme in Agrobiology and contributes to the MSc programme of the same name. The department is also responsible for the Master's degree programme in Agro-Environmental Management. The department also contributes to the PhD programme.

Geographical location

Foulum and Flakkebjerg.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	247,722,711	116,715,580	82,289,576	10,215,963
Employees	246	82	51	113
Student FTEs earned in 2018	115			

Department of Bioscience / Institut for Bioscience (RSK)

Research groups

Marine ecology; terrestrial ecology; freshwater ecology; Arctic environment; wildlife ecology and biodiversity; and plant biology.

Research facilities

Laboratories, growth facilities (Silkeborg), field test facilities and greenhouses, trial areas and the Zackenberg field station.

Public sector consultancy

The department contributes to research-based public sector consultancy within the fields of nature and environmental management of aquatic and terrestrial ecosystems in both Denmark and Greenland, catchment management, and monitoring. The department advises the Ministry of Climate, Energy and Building, the Ministry of the Environment and Food, the Ministry of Higher Education and Science, the Government of Greenland and the European Environment Agency.

Education

The department contributes to the study programmes in Biology, Agro-Environmental Management and Geoscience. The department also contributes to the PhD programme and further and continuing education.

Geographical location

Silkeborg, Kalø and Roskilde (the move from Silkeborg and Kalø to Aarhus will take place as planned).

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	242,018,519	116,027,097	59,394,751	0
		(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	245	152	11	83
Student FTEs earned in 2018	0			

Department of Animal Science / Institut for Husdyrvidenskab

Research groups

Animal nutrition and physiology; molecular nutrition and reproduction; immunology and microbiology; behaviour and stress biology; epidemiology and management.

Research facilities

Laboratory platforms for Cell and reproductive biology, Metabolomics and molecular nutrition, Physiology, Immunology, Microbiology, Biomass, Feed and foodstuff classification and

Biomass. Other research facilities include surgical laboratory, small animal laboratory, intensive facilities for pigs and research facilities for cattle, pigs, poultry and fur animal, organic animal science platform and field operation for the production of experimental feed.

Public sector consultancy

The department is the main provider of research-based public sector consultancy within animal production, and also contributes under the service agreement for food quality and consumer behaviour, the service agreement on plant production and the service agreement on air, emissions and risk assessment.

Education

The department is responsible for the Master's programme in Agrobiology and contributes to the BSc programme of the same name. The department is also responsible for the Erasmus Mundus Master's programme in Sustainable Animal Nutrition and Feeding and the Euro League Master's degree programme in Organic Agriculture and Food Systems, as well as the Master's programme in the assessment of animal welfare in primary production, and also contributes to the teaching at the Department of Food Science and Department of Bioscience (Aarhus). The department also contributes to the PhD programmes.

Geographical location

Foulum.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	207,447,104	76,299,134	85,557,648	5,103,450
Employees	Total 180	(Academic staff) 60	(PhDs) 14	(Technical/admin staff) 106
Student FTEs earned in 2018	0			

Department of Environmental Science / Institut for Miljøvidenskab

Research groups

Environmental chemistry and toxicology; microbial ecology and biotechnology; atmospheric environment; and social and geographical environmental research.

Research facilities

Accredited air pollution laboratories, air quality monitoring stations and a Linux cluster for model calculations. Accredited organic analytical laboratories. DNA and RNA sequencing laboratories and bioinformatics servers. The department also runs the Villum Research Station and the Zackenberg field station in collaboration with the Department of Bioscience.

Public sector consultancy

The department contributes to research-based public sector consultancy in the fields of atmospheric environment, climate change, environmentally hazardous substances, microbiology, risk assessment, biotechnology, environmental economics, environmental sociology, and monitoring. The department advises the Ministry of Climate, Energy and Building, the Ministry of the Environment, the Ministry of Science, and the European Environment Agency.

Education

The department contributes to the study programmes in Biology and Agrobiology. The department also contributes to the PhD programme.

Geographical location

Roskilde

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	107,815,969	55,481,967	34,879,526	0

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	142	56	28	58

Student FTEs earned in 2018	0
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Department of Food Science / Institut for FødevarerResearch groups

Plant, food and sustainability; plant, food and climate; differentiated and biofunctional foods; food chemistry and technology; food quality, perception and society.

Research facilities

Trial fields and laboratories for research into the production of fruit and vegetables, plant physiology and quality assessment. Greenhouses and laboratories for research into protected plant production, climate and phenotyping. Laboratories for food chemistry analyses and pilot processing facility. Laboratories for research into food and health. Laboratories for research into sensory properties and consumer perceptions of food.

Public sector consultancy

The department contributes to research-based public sector consultancy in plant production, food quality and consumer behaviour, and animal production.

Education

The department is responsible for the Master's degree programme in Molecular Nutrition and Food Technology, and contributes courses on a number of other programmes (Agrobiology, Agro-Environmental Management, Biotechnology, Chemical Engineering and Food Technology, Biology, Molecular Biology). The department also contributes to the PhD programmes.

Geographical location

Årslev and Foulum (the department will relocate to Aarhus as planned).

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	87,964,337	35,815,697	34,911,060	3,611,791

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	94	37	21	36

	2018
Student FTEs earned	31

Department of Engineering / Institut for Ingeniørvidenskab**Research groups**

Electrical and computer engineering; civil and architectural engineering; mechanical engineering; biological and chemical engineering.

Research facilities

Various laboratories at Katrinebjerg, Navitas, the Science Park on Gustav Wieds Vej, bio-refinery, biogas and green protein plants in Foulum, and deep tech experimental facilities in Skejby.

Public sector consultancy

The department contributes to research-based public sector consultancy in advanced technology for agriculture, energy, food and the environment.

Education

The department is responsible for Bachelor's programmes in Biotechnology, Chemical Engineering, Civil and Architectural Engineering, Electrical Engineering and Computer Engineering, as well as Master's degree programmes in Civil and Architectural Engineering, Electrical Engineering, Computer Engineering, Biomedical Engineering/Technology, Biotechnology and Chemical Engineering, and Mechanical Engineering. The department also contributes to the teaching in several departments (Bioscience, Physics, Geoscience, Chemistry, Computer Science, Mathematics and several Engineering programmes). The department also contributes to the PhD programmes.

Geographical location

Various locations in Aarhus, and facilities in Foulum.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	242,565,754	114,798,769	15,759,950	52,623,341

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	250	156	50	44

Student FTEs earned in 2018	357
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Aarhus School of Engineering - ASE

ASE's primary purpose is to train Bachelors in Engineering. ASE carries out innovation and development and application-oriented research projects in collaboration with business and industry. A significant part of the cooperation with companies is through projects involving the students. To a lesser extent, ASE handles development and consultancy tasks for companies.

Facilities

ASE has a number of experimental facilities, which are used by students and in connection with R&D projects with companies.

Education

ASE is responsible for the Bachelor of Engineering programmes in the faculty, and also contributes to a limited extent to the teaching at the Department of Engineering. ASE also works closely with the Department of Food Science on the Bachelor of Engineering programme in Chemical Engineering and Food Technology.

Geographical location

Aarhus (Navitas and Katrinebjerg) and Herning. (ASE relocating within Aarhus as planned).

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	237,261,693	1,364,800	0	228,801,894

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	174	134	0	40

Student FTEs earned in 2018	1957
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DCE - Danish Centre for Environment and Energy / Nationalt Center for Miljø og Energi

Subject areas

Environment, air quality and emissions, climate change and greenhouse gases, xenobiotics, water quality, nature, biodiversity and environmental impacts of energy consumption and production.

Public sector consultancy

The centre coordinates and monitors public sector consultancy in the fields of the environment, nature, climate and energy.

Geographical location

Roskilde, Silkeborg and Kalø (Silkeborg and Kalø to be vacated as planned).

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	23,407,000	2,392,000	21,019,000	0

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	12	2	0	10

DCA - Danish Centre for Food and Agriculture / Nationalt Center for Fødevarer og Jordbrug

Subject areas

Plant production, animal production, environmental impact of agriculture, animal welfare, breeding and genetics, technological development, bioenergy, circular bioeconomy, food production and quality, consumer behaviour, eating habits and health.

Public sector consultancy etc.

The centre coordinates and quality-assures public sector consultancy within these fields, specifically under service agreements with the Ministry of Environment and Food (MFVM). The centre also supports the research environments in developing business cooperation in new fields in accordance with the framework agreement with the Ministry of Environment and Food, and supports initiatives for international cooperation, including new research partnerships.

Geographical location

Foulum, Flakkebjerg, Årslev (Årslev to be vacated as planned).

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	19,909,000	1,288,000	18,475,000	0

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	14	2	0	12

FACULTY OF SCIENCE**Department of Bioscience / Institut for Bioscience (AAR)**Research groups

Genetics and ecology; microbiology; zoophysiology; ecoinformatics and biodiversity; geomicrobiology; plant biology; and marine ecology.

Research facilities

Laboratories (including DNA Laboratory), herbarium, and growth facilities (Påskehøjgård, trial sites, greenhouses etc.), marine biology field station (Rønbjerg), and the research vessel R/S Aurora.

Public sector consultancy

The department will be able to contribute to public sector consultancy by agreement with the vice-dean for public sector consultancy at the Faculty of Engineering and Life Sciences.

Education

The department is responsible for Bachelor's and Master's programmes in Biology, and contributes to the teaching of courses offered by e.g. iNANO. The department also contributes to the PhD programmes.

Geographical location

Aarhus.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	213,016,845	99,227,857	0	37,959,429
Employees	194	85	39	70
	2018			
Student FTEs earned	355			

Department of Computer Science / Institut for DatalogiResearch groups

Algorithms and data structures; computer mediated activity; data-intensive systems; cryptography and security; logic and semantics; mathematical computer science; programming languages; ubiquitous computing and interaction; use, design and innovation; modelling and validation of distributed systems.

Research facilities

Laboratory for Interaction Research - including AR/VR, workshop for production of and experiments with physical prototypes, and various server and cloud installations for data processing and analysis.

Education

The department is responsible for the Bachelor's and Master's programmes in Computer Science and IT Product Development. The department also contributes to the teaching on further and continuing education courses under IT-Vest and several other programmes at ST. The department also contributes to the PhD programmes.

Geographical location

Aarhus.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	172,236,630	49,562,098	0	46,484,288
Employees	113	55	40	18
	2018			
Student FTEs earned in 2018	419			

Department of Physics and Astronomy / Institut for Fysik og Astronomi

Research groups

Experimental atomic and molecular physics; sub-atomic physics; cold ions; quantum gases and quantum optics; age dating group; atomic collisions and atomic physics at CERN; theoretical condensed matter; astrophysics; materials science; synchrotron group; Mars group.

Research facilities

Dedicated laboratories, major research infrastructure centres (including ISA - the Institute for Storage Ring Facilities and the AMS Dating Laboratory).

Education

The department is responsible for the Bachelor's and Master's programmes in Physics and the Master's degree programme in Astronomy, and contributes courses to the degree programmes in Geoscience and Nanoscience. The department also contributes to the PhD programmes.

Geographical location

Aarhus.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	234,293,970	123,849,835	0	21,801,578

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	220	104	51	65

Student FTEs earned in 2018	243
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Department of Geoscience / Institut for Geoscience

Research groups

Sedimentology and glacial geology; paleoclimate and paleoceanography; plate tectonics; basin oil geology and volcanology; physical geography; hydrogeology; and hydrogeophysics.

Research facilities

Various geological laboratories

Public sector consultancy

No activities

Education

The department is responsible for the Bachelor's degree programme in Geoscience, the MSc in Geology and the MSc in Geophysics. The department also contributes to the PhD programmes.

Geographical location

Aarhus.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	96,282,851	53,844,644	0	11,627,503

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	94	51	16	27

Student FTEs earned in 2018	123
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Department of Chemistry / Institut for KemiResearch groups

Materials chemistry; analytical chemistry; physical chemistry; NMR; medical chemistry; organic chemistry; theoretical chemistry; atmospheric and climate chemistry; and biophysical chemistry.

Research facilities

Various chemistry laboratories, e.g. for synthesis. Large-scale experimental equipment, e.g. NMR, SAXS, X-ray diffraction, lasers, microscopy, climate chamber computing etc.

Education

The department is responsible for the Bachelor's and Master's programmes in Chemistry and Medical Chemistry. The department offers several courses that are included in other programmes, and also contributes to courses. The department also contributes to the PhD programmes.

Geographical location

Aarhus.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	219,497,128	119,655,609	0	20,569,251

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	138	64	44	30

Student FTEs earned in 2018	307
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Department of Mathematics / Institut for Matematik

Research groups

Algebra; analysis; geometry/topology; statistics; probability theory; mathematics-economics; science studies

Research facilities

Nothing specific.

Education

The department is responsible for the Bachelor's degree programmes in Mathematics, Mathematics-Economics and Data Science, and the Master's degree programmes in Mathematics, Mathematics-Economics, Data Science, Statistics and Science Studies. The department contributes Mathematics courses for all other natural science and technical (civil engineering) Bachelor's programmes. The department also contributes to the PhD programmes.

Geographical location

Aarhus.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	101,669,331	26,667,013	0	27,425,250
		(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	80	48	19	13
Student FTEs earned in 2018	511			

Interdisciplinary Nanoscience Centre - iNANO

Research groups

Research at iNANO is mainly within the following strategic areas: nanomaterials; interfaces and catalysis; nanomedicine; synthetic biology; and nanofood. The research is carried out by research groups based within iNANO and in several departments, especially Chemistry, Physics and Astronomy, and Molecular biology and Genetics.

Research facilities

Dedicated laboratories ranging from clean-room synthesis of nanostructures, through organic and inorganic synthesis, to genetic engineering and cell laboratories. Home to a suite of large-scale experimental equipment for nanocharacterisation by means of microscopy, spectroscopy and scattering techniques, including facilities for nuclear magnetic resonance (NMR), and electron microscopy.

Education

This department-like centre is responsible for Bachelor's and Master's degree programmes. The department also contributes to the PhD programmes.

Geographical location

Aarhus.

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	102,105,531	54,117,136	0	11,381,364

	Total	(Academic staff)	(PhDs)	(Technical/admin staff)
Employees	166	74	65	27

Student FTEs earned in 2018	62
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Department of Molecular Biology and Genetics / Institut for Molekylærbiologi og Genetik**Research groups**

Cellular signalling and developmental biology; gene expression; genome biology; structural biology; protein biochemistry; molecular genetics and biotechnology; molecular genetics and system biology; quantitative genetics; and statistics.

Research facilities

Laboratories, four core facilities, greenhouses, climate chambers and fishing facilities.

Public sector consultancy

The department contributes to research-based public sector consultancy on the use of genetic engineering, plant and animal genetics and improvement.

Education

The department is responsible for Bachelor's and Master's programmes in Molecular biology and Molecular medicine, and contributes to the teaching on several other programmes. The department also contributes to the PhD programmes.

Geographical location

Aarhus (the department will relocate within Aarhus as planned), Foulum and Flakkeberg (plans for the Centre for Quantitative Genetics and Genomics, and the Section for Crop Genetics and Biotechnology to be confirmed).

Key figures

	Total	Of which External funding	Of which Public sector consultancy	Of which Education
Revenues	332,153,442	171,472,014	22,562,287	38,224,868
Employees	310	165	54	91
Student FTEs earned in 2018	424			