

# School of Natural Sciences

## Learning and Teaching Strategy

### 15/16–18/19

### Students as partners in learning and teaching

#### 2. Quality Academic Content

- Programmes designed for current times
- Multiple learning styles and learning for life
- Teaching underpinned by research
- Students take responsibility for own learning
- Positive self-reflection and awareness
- Value initiatives by staff and students

#### 3. Staff & Student Experience

- A positive student experience, based upon a positive staff experience
- Supportive work environment
- Recognition and reward for excellence in teaching

#### 4. Employability

- Implement the SNS employability strategy
- Employability embedded in our curricula
- Engaging with employers to provide work-based and work-related learning
- Increase the number of graduates going into appropriate level employment or further education

#### 1. Staff-Student Partnerships

- Diverse and inclusive community of staff and students, sharing responsibility to achieve aims
- Staff and students develop as partners in learning and teaching

#### 5. Supportive & Inspiring Community

- A holistic approach to student support
- Broad range of opportunities
- A culture that recognises and values ability
- Address imbalance of gender at subject level

#### 6. International Opportunities

- Awareness of international issues and cultures by our students
- Education for global citizenship
- Opportunities offered for all to study abroad

#### 7. Learning Spaces & Technology

- Welcoming learning spaces encourage creativity and collegiality
- Engage with innovative technologies and practices to enhance learning.



### Strategy performance indicators

#### Improvements in:

- Student and staff surveys
- League tables
- Student retention
- Student mobility
- Graduate employability
- Student recruitment, inc. RUK & TPG FTE
- Number of external awards in recognition of learning and teaching
- Proportion of staff as fellows of the Higher Education Academy

## School of Natural Sciences, Learning and Teaching Strategy: 2015/16–2018/19

### Overarching vision

The School of Natural Sciences (SNS) strives to provide a vibrant, inspiring educational experience, where students are supported to fulfil their potential as confident, independent, analytical and positive contributors to society. We offer strong theoretical frameworks with rigorous training in field, laboratory and numerical skills, and provide a rich network of educational and international opportunity. Students become effective learners, possessing enquiring minds, and sound judgement of evidence. They leave equipped with skills necessary for a wide range of intended careers, and are sought after by employers in all parts of the world. The educational experience prepares our students for lifelong learning.

Universities play a critical role, pushing forward the frontiers of knowledge and transforming people's lives. The human capital that University staff possess is fundamental to the delivery of high-quality knowledge - and skills-based degrees. Promoting and maximising staff-wellbeing, and providing appropriate training and support, is therefore essential for the efficient and effective production and delivery of teaching and knowledge exchange within an internationally excellent research intense environment. The University Research Strategy<sup>1</sup> states that staff on Teaching & Research contracts should have at least 40% of their time protected for research activity; we shall endeavour to ensure these staff commit 40% of time to teaching and learning activities.

We shall try to ensure the reputation of undergraduate degrees awarded within SNS remains competitive. Furthermore, in an international higher education environment where an ever increasing proportion of school leavers go on to university, we are conscious that the PG degree will increasingly

become a key discriminator, and we therefore plan to encourage graduates to continue to Taught Postgraduate (TPG) degrees. Additionally we are conscious of the desire to narrow the gap between Further Education (FE) and Higher Education (HE) and the opportunities that this has already presented through our partnership with Forth Valley College (FVC). We will more radically explore the possibility of creating combined masters degrees with multiple entry points and multiple exit points. The multiple entry points will take advantage of the FVC partnership while the multiple exit points will provide the opportunity for students to leave with bachelors or masters degrees.

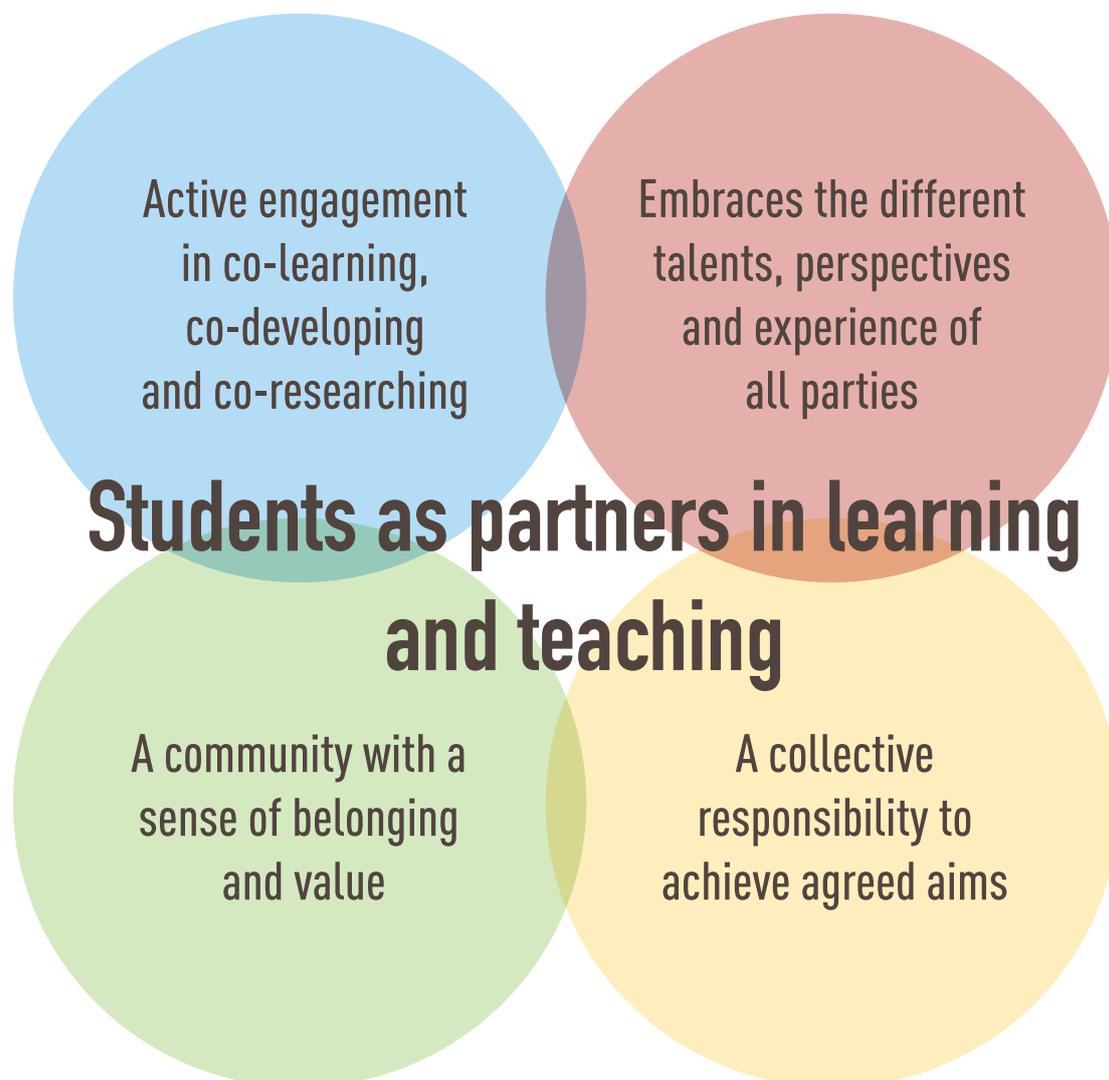
We shall endeavour to deliver teaching programmes of the highest quality; innovative and reflective, driven by our research agendas, increasing employer engagement and focussed on real-life issues. Science, Technology, Engineering and Maths (STEM) education is important at both school and FE/HE level and we recognize that a strong STEM economy is built on strong subject teaching. We need to maintain the funding stream associated with the delivery of STEM subjects, particularly to support improved infrastructure to allow us to deliver competitive STEM education. We recognise the importance of sharing best practice and integrating across the school and University. We shall continue to be proactive in driving new and better research and teaching configurations, and will respond appropriately to the Quality Assurance Agency for Higher Education's (QAA) Enhancement Led Institutional Review<sup>2</sup> (ELIR). We will continue to embrace the University of Stirling's Transforming the Student Experience<sup>3</sup> initiative by putting the student at the heart of all our teaching and learning activities. Working in partnership with students, we aspire to be a community taking collective responsibility to achieve agreed aims (see Figure 1).



**Figure 1: The key features of working successfully with students in partnership.**

Our focus for the next three years has an emphasis on key aspects of the student journey, new TPG teaching initiatives and with staff and students working in partnership:-

1. Developing staff-student partnerships as an umbrella theme
2. Deliver top quality academic content (knowledge and skills) recognised nationally and internationally
3. Staff and Student experience
4. Employability
5. Supportive and inspiring community
6. International opportunities
7. Learning spaces, facilities and technology





## 1 Developing staff-student partnerships as the umbrella theme

- a) Foster a diverse and inclusive community of staff and students that recognises students as partners, sharing responsibility to achieve agreed aims.
- b) Engage, challenge and inspire staff and students to develop as partners in learning and teaching, to allow students to develop their ability to learn independently, collaboratively, and with the spirit of enquiry. Encourage all (staff and students) to play a part in enhancing experience and ensuring quality.

## 2 Deliver top quality academic content (knowledge and skills) recognised nationally and internationally

- a) Provide programmes and modules *designed for current times*, with balance and breadth whilst maintaining flexibility and/or choice.
- b) Cater for *different ways of learning* and actively encourage *learning for life*.
- c) Use internationally recognised strengths in research to underpin and inform learning and teaching.
- d) Motivate and *empower students* to take responsibility for learning, and to seek out opportunities to fulfil their potential.
- e) Continue to *value initiatives* by individuals, and teams to enhance local practices.

## Pathways to delivery

- i. Maintain the university's commitment to quality enhancement, and monitoring for quality assurance<sup>5</sup>, undertaken through the Division and School Learning and Teaching Committees, internal reviews, external accreditation and through NSS assessments. This includes accreditation of undergraduate degrees for Psychology, Computer Science and Environmental Science, and the Health Psychology MSc by their respective national societies.
- ii. Support the key role of programme directors in guiding development of teaching in their area, using whole programme mapping approaches (including academic content, assessment, employability, Graduate Attributes delivery, internationalisation opportunities, e-learning etc).
- iii. Work with our Academic Development Partners, and Human Resources and Organisation Development, to encourage positive *self-reflection and awareness* of other perspectives for academic staff, including personal development and development of leadership skills.
- iv. Maintain and develop our innovative programme partnerships
  - Applied Biological Sciences and Applied Computing Science 2 + 2 in collaboration with Forth Valley College under the SFC's Skills for Science programme.
  - Environmental Science (Integrated Masters) 3+1.
  - Computing Science programmes offered with Muscat College.

- v. Respond to opportunities for shared teaching on external degrees – such as Aquatic Production and Veterinary Health, to be co-delivered in Hong Kong by Institute of Aquaculture staff and colleagues in the City University of Hong Kong.
  - vi. Continue to deepen integration within our School – to facilitate the sharing of best practice, to look for ways to integrate across School disciplines (e.g. to better integrate: Computing Science and Mathematics with other disciplines; the biology of Aquaculture and Biology and Environmental Sciences (BES); and the sustainability areas of Aquaculture and BES).
  - vii. Extend student-led learning, following the example in Psychology that has received external commendations, to enable students to gain in confidence, and better prepare them for their futures (see also Section 4), with a focus on the importance of positive self-reflection. Innovations in programmes may include “high impact educational practices”<sup>6</sup> supported by staff, such as:
    - Students facilitating a group of peer students who are jointly learning.
    - Student mentoring others in earlier stages of the programme.
    - Student leaders delivering planned skill-based elements of formal teaching.
    - Final year conference, including ownership by students of event organisation (may also be used for marketing of prospective students).
    - Independent, unsupervised research projects in final year, that address real-world issues (capstone projects<sup>6</sup>)
    - Third year students attending final year student presentations and learning from their research dissertation experiences.
    - Engaging final year UG students with TPG poster/presentation events.
  - viii. Provide opportunities for students to take business and enterprise modules.
  - ix. Monitor student evaluations of modules (through EvaSys) and programme reviews and intervene as required.
  - x. Ensure the new University Feedback and Feedforward policy<sup>7</sup>, developed in partnership with students, is taken up by staff and students, and any School-specific issues are appropriately addressed.
  - xi. Continue to work with student officers, module representatives, Students Union and ensure these individuals are well trained to allow them to successfully fulfil their role.
  - xii. Ensure module teaching assistants are formally appointed as Recognised Teachers and provide School-wide generic training, combined with discipline, module and task specific training as required.
  - xiii. Encourage staff to discuss their professional training needs, and engage with training and professional development delivered and coordinated by our Academic Development Partners and accredited through the HEA<sup>8</sup> to ensure high standards are maintained and we keep abreast of new developments and practices.
  - xiv. Continue to promote staff peer mentoring, as an excellent collegiate way to share and reflect on learning and teaching practices.
  - xv. Work with Development & External Affairs to improve marketing of our degrees and the wider student experience to address the discipline specific needs of the School.
- ### 3 Staff and Student experience
- a) Raise awareness that a **positive student experience** is based upon a **positive staff experience**.
  - b) Promote a positive student learning experience by supporting a working environment in which staff have sufficient time to **fully engage with students** and **reflect upon their teaching practices**.
  - c) Aspire to working in a culture that **recognises and rewards excellence** of staff in teaching.
- ### Pathways to delivery
- i. Ensure we maintain Staff-Student ratios within professional standards where they exist, and set at a level that allows staff to provide a positive student experience.
  - ii. Where feasible and desirable, concentrating teaching for individual staff in one semester to provide more dedicated time for research in the lighter teaching semester.
  - iii. Improve efficiency by providing staff the ability to plan ahead for both teaching and research.



- iv. Focus on improving the efficiency of module delivery and allow academics time to share their skills and expertise with students, without unnecessary administrative burdens.
- v. Encourage more students to make RATE nominations to confirm to academic and support staff that their contributions are valued and appreciated
- vi. Perform a programme efficiency review to ensure all modules are justified in terms of staff time/resources.

#### 4 Employability

- a Engage fully with the University's Employability Strategy<sup>9</sup> and other external/interval drivers, while ensuring relevance to the School.
- b Raise awareness, develop and embed employability so that our students develop subject knowledge, professional and career management skills that are transferable to their chosen careers, which benefit themselves, the workforce, the community and the economy.
- c Encourage continuing engagement with employers and other external organisations to provide work-based/work-related learning interspersed within, and parallel to, the curriculum.
- d Increase the number of graduates going into positive destinations and graduate level jobs and/or further education.

#### Pathways to delivery

- i Continue working with the School Employability Sub-committee, the Careers and Employability Service (CES), the University Employability Working Group, Employability Hub (EHUB) and the Corporate Engagement Group, to inform and share practice across subject areas.
- ii Following the recent degree programme employability review, each degree programme will aspire to evidence a significant increase in the engagement and delivery of components of the University Employability Strategy:
  - Continue to map employability-related activities
  - Increase visibility of the new University Graduate Attributes document<sup>10</sup>, and every module to work proactively towards their delivery.
  - Increase engagement with employers and our external communities in taking a partnership approach with individuals and organisations to spark creativity and maximise our impact within our teaching and learning.
  - Implement further credit bearing placement modules to provide students with an opportunity to apply what they are learning in real-world settings and to reflect on their experiences.
  - Increase student engagement in career management skills and reflective practice

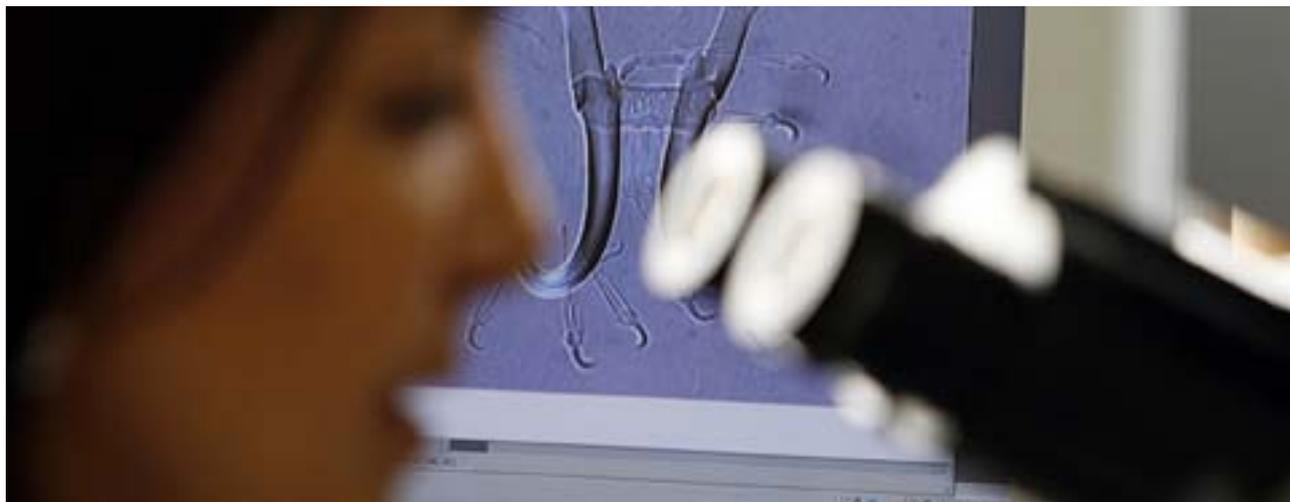


- Provide opportunities to broaden experience (e.g. external speakers, field courses, inter-School collaborations, extra-curricular activities etc).
  - Further develop the marketing and promotion of employability skills and competencies that are delivered within our teaching as well as employment outcomes.
- iii Develop a better understanding of employability in our learning community through staff development by sharing and enhancing good practice.
  - iv Develop pathways for enterprise education integral to learning and teaching within the School.
  - v Actively encourage and promote employability opportunities and their benefits to students through our teaching staff and trialling the student-led social media initiative “Be Job Ready in SNS” to increase engagement and outcomes at a local, national and international level.
  - vi Continue to increase involvement with the University Alumni by developing a community for SNS graduates.
  - vii Further develop and monitor a mentoring scheme for current students.
  - viii Offer every student a Masters place early in final year, conditional upon attainment of a good degree.

- ix Develop a review process, through the SNS Employability Sub-committee, that will facilitate reflection, enhancement and reporting of employability aspects with consideration of its impact on teaching, learning and career development.

### 5 Supportive, integrated and inspiring community, committed to clear communication and setting high standards

- a) Provide a **holistic approach to student support**, with access to high quality academic, pastoral and peer support tailored to the individual.
- b) Support and encourage students to engage with the **breadth of learning opportunities** available within and beyond the university. These include local academic societies (e.g. Biology Society, Psychology Society), as well as opportunities through learned Societies (e.g. International Society for Behavioral Ecology; British Psychological Society; Royal Scottish Geographical Society).
- c) Be creative in celebrating and respecting differences in background, gender, identity, and beliefs based on **equality and inclusivity** and a culture that recognises and values ability, not background.
- d) Engage with the Scottish Funding Council's developing Gender Action Plan for Colleges and Universities in Scotland with the aim of addressing imbalances of gender of both staff and students at the subject level.



### Pathways to delivery

- i. Ensure student support is highly visible and accessible.
- ii. Consolidate procedures for identifying students at risk early and intervening appropriately.
- iii. Provide appropriate *induction* and *transition* events at all key stages of the student journey based on recommendations from the Transitions working group – communicating high standards of commitment and performance expected of students, with such standards set by staff. In addition to personal tutoring for all students, in which employability is discussed, we shall ensure roles and responsibilities are clearly articulated, such as what financial commitments are required for items such as lab coats, textbooks and field trips at the start of each semester.
- iv. Certain programmes require additional support such as Forth Valley College students, where we are committed to:
  - Host a welcome event when the students first arrive.
  - Introduce a “buddy system” with each new-to-Stirling student buddied by an established-at-Stirling student to manage differences in pedagogical culture.
  - Ensure every new-to-Stirling student is fully integrated in mixed cohort practical classes groups to embed them in the Stirling culture.
- v. Clearly advertise opportunities for all students to become engaged in research groups, as research assistants (e.g. StAR<sup>11</sup>), and Divisions to offer student bursaries.
- vi. Continue to work with Student Recruitment & Admissions to provide widening participation events such as STAMP (Science Technology Aquaculture Maths and Psychology) events<sup>12</sup> offered to local schools.
- vii. Encourage students to participate in STEER<sup>13</sup> (a University-wide Student Peer Support Scheme, run largely by students for students) to aid engagement
- viii. Continue to work with the Student Union to support the SNS related learning experiences offered by SU clubs and societies.
- ix. Continue to engage with local and national outreach activities such as Science Girl<sup>14</sup> and Explorathon Scotland<sup>15</sup> to showcase natural sciences as an attractive study and career choice for all students.

## 6 International opportunities

- a) Encourage awareness of international issues and cultures by our students and supporting the principle of *education for 'global citizenship'*.
- b) Support and encourage students to take the *opportunities offered for all to go abroad*, and welcome visiting students to provide a global culture for home students.

### Pathways to delivery

- i. Engage fully with the University Internationalisation strategy<sup>16</sup> which for example, outlines mechanisms to attract international students, and highlights ERASMUS<sup>17</sup> exchanges.
- ii. Explore new international studentship initiatives, and maintain the Brazilian-based Science Without Borders<sup>18</sup>.
- iii. Further develop our activities within the INTO Framework<sup>19</sup>, expanding and securing the science based component of this initiative.
- iv. Remain an active part of Scotland's United Nations University Regional Centre of Expertise on Education for Sustainable Development<sup>20</sup>.

## 7 Learning spaces, facilities and technology.

- a) Develop *welcoming learning spaces* that provide opportunities for ideas to flourish, interdisciplinary discussions and collegiality.
- b) Encourage *engagement with innovative technologies and practices* to enhance teaching and learning.

### Pathways to delivery

- i. Continue to enhance our field and laboratory facilities to ensure learning and teaching of high-level skill sets.
- ii. Engage with the University e-learning strategy to enhance learning and teaching, led by pedagogy. In particular:
  - Work to improve the proportion of lectures delivered on Listen Again and explore with Information Services and in partnership with students how best to integrate the use of electronic materials to support innovative and engaging teaching practice.
  - Attempt to make all student work submission electronic, and promote electronic marking. Explore ways to ensure students read feedback and use to feedforward by assessment of student reflections on feedback before grades are released.
  - Pilot the use of electronic exams with a view to its wider adoption in appropriate SNS assessments.
  - Utilise tried and tested technology such as student response systems (e.g. Quizdom, Socrates, Poll Everywhere, Turning Point, Mentimeter) to engage students proactively, and when appropriate consistently across the School.
  - Horizon scan for innovative technologies and practices to enhance teaching and learning.
- iii. Engage with the University Learning Spaces Group, to ensure an academic and student perspective is incorporated.

### Targets/Ambitions for Key Performance Indicators (KPIs)

Following a review of current, and past performance on the following measures across all subjects/programmes in the School, we have set the following targets/ambitions, upon which we shall measure the success of the implementation of the strategy. We shall monitor our progress annually, and intervene as required, with the targets set for 2018.

Measure	Target/Ambition by 2018
The National Student Survey (NSS) Postgraduate Taught Experience Survey (PTES) and the International Student Barometer (ISB)	To improve on the “overall satisfaction” question, in all our subjects with the aspiration for all subjects to be in the upper quartile.
The University Staff Survey	To aspire to all staff responding positively to the question “My satisfaction at work is generally high”.
League table performances (Guardian, Complete Guide, Times)	To improve in all our subjects with the aspiration for all subjects to be in the upper quartile.
U/G student dropout rates	To reduce our undergraduate drop out to less than the University average.
Student mobility internationally	To increase the number of students going on international exchanges, and international students coming to Stirling.
Graduate Employability after 6 months (Destination of Leavers in Higher Education (DLHE) statistics)	To increase the percentage of School leavers being in “positive destinations” to 95%. To increase the percentage of School leavers in Professional level jobs to 60%.
Recruitment of better qualified students	To increase the average tariff scores to over 400 across the School.
RUK UG FTE	To increase the RUK UG cohort by 25%.
TPG FTE	To increase the TPG cohort by 50%.
Fellows of the Higher Education Academy (HEA)	To have at least 25% of permanent staff who teach with Fellowship (including Associate) of the HEA.
External Recognition Awards	To increase the number of awards reflecting recognition of practice.

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