

HE Bioscience Teacher of the Year 2020 Application Form

Dr Alfred Thumser – University of Surrey

1. Individual excellence in the development and implementation of teaching bioscience

In not more than 500 words please outline, with evidence (references are not included in the 500 word limit), how the candidate displays individual excellence in the development and implementation of approaches to teaching that have proven successful in promoting bioscience student learning and achievement

Dr Alfred Thumser is an invaluable colleague in facilitating development of our pedagogy in the School of Biosciences & Medicine (the School). As a testament to his ingenuity in this regard, the School appointed him, following a competitive process, to the role of 'Strategic Lead for Education', enabling him to share his ideas more widely and to implement them.

Alfred has been a leading light in maintaining teaching of the highest quality and developing new approaches to enhance the student experience in the School. His efforts and positive outcomes have been acknowledged by several teaching-focussed accolades that include:

Awards:

- Best Lecturer, Biosciences, 2013;
- Lynne Millward Award for Academic Staff member of the year at the Annual Student Awards, 2014 and 2017;
- Students Honouring Outstanding University Talent - SHOUT, 2017;
- University of Surrey Vice-Chancellor's Best Teacher award, 2018.
- Module evaluations of the highest standard (linked to excellent university NSS scores for Biosciences);
- Multiple invited talks locally, nationally and internationally, on his approach to the educational experience;
- His appointment as Strategic Lead for Education in the School.

Alfred's educational philosophy is motivated by the idea that he would like students to remember their time at university as being challenging and rewarding. His teaching approach centres on the constructive development of students' intellect through the critical discussion of concepts to synthesize knowledge. Evidence of the student cohort's appreciation and acknowledgement of Alfred's approach is indicated by exemplary student quotes, a sample of which follows:

- "His enthusiasm, knowledge and input are second to none. His notes are concise, his teaching is clear, his feedback is extremely useful";

- “Dr Thumser's aspect of the module was excellent! His genuine interest in the learning of each student really shone through and he cares about everyone doing well”;
- “As always, a Dr Thumser module is the gold standard of how other modules should be. The module is well organized, digestible and interesting”;
- “The emphasis on improvement was one of the best aspects of this module”;
- “His feedback sessions were really useful, and should potentially be advised to other module organisers... Furthermore, his proformas for the essays were a good idea to check that you have included essential aspects of the assignment”;
- “The setting up of tutorials and workshops were very beneficial and enabled the improvement of work”;
- “Tutorials and library workshops helped towards writing better essays and developing critical thinking”.

In his previous role as BSc Biochemistry Programme Director, Alfred led an MSc in Health & Clinical Sciences, two undergraduate programme reviews and mentored colleagues developing a new MSci in Biochemistry programme. On the latter programme, He is using his pedagogic knowledge to introduce innovative practice on a module (Effectively Communicating Science in Modern Society) that will actively engage students with a broad range of communication styles and innovative assessment procedures, including peer feedback. More broadly, Alfred excels in the *In2Surrey* widening participation programme, Open Days, Applicant Days and “Welcome to Surrey” talks.

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2. Involvement in scholarly and professional development activities

In not more than 500 words please describe all scholarly or professional development activities that the candidate has undertaken, which have influenced and enhanced the learning of bioscience students

In terms of pedagogic scholarship, Alfred is currently involved in several projects that will be published. These include two student-staff projects, one of which is focussed on the student perception of teaching excellence (“What does Teaching Excellence mean to undergraduate students in the Biosciences at the University of Surrey?”) and the second project is a collaboration with the Department of Technology-Enhanced Learning to develop study and learning for-students-by-students. His “Writing Workshops for Bioscience Students” project is a collaboration with the library’s Learning & Development team and preliminary outcomes have been presented at several workshops, e.g. Biosciences Education Summit, King’s College London (2019). Alfred is also collaborating with the Department of Higher Education on the use of concept maps to elucidate the professional development of teaching staff (Developing an online questionnaire to scaffold a collaborative concept mapping activity; Aguiar J, Bailey, IG, Bailey SG, Thumser AE, Trinder SL, Evans DL & Kinchin IM; PSU Research Review: August 2019; Eliciting experts’ knowledge structures as a route into SoTL. Kinchin IM, Bailey I, Bailey SG, Trinder SL, Evans DL & Thumser AE, in preparation, 2019).

Alfred is a strong advocate for engagement with professional learning and development opportunities and regularly attends and contributes to workshops presented by the Department of Higher Education, Department of Technology-Enhanced Learning and library Learning & Development team. Outside the University of Surrey, he attends workshops provided by the Royal Society of Biology (HUBS) and Biochemical Society, as well as ad hoc teaching & learning events, e.g. “Towards Meaningful Partnerships: Student-Staff Collaborations to Enhance Learning and Teaching across the Disciplines”, University of Surrey, Sept 2019; Maximising Student Success through the Development of Self-Regulation reservation, University of Birmingham, Sept 2019. Knowledge gained from these activities is then applied within the School to improve the quality of teaching and ultimately the student experience. Furthermore, Alfred organises Teaching & Learning seminars with the aim of improving practice in the School (see section 5).

In addition to his substantial Learning & Teaching profile, Alfred still publishes subject- specific research papers:

Linking physiologically-based pharmacokinetic and genome- scale metabolic networks to understand estradiol biology. Sier JH, Thumser AE, Plant NJ. *BMC Syst Biol.* 15: 11(1):141 (2017);

Constituents of Bulbs of three Species of the Hyacinthaceae (Hyacinthoideae): *Eucomis vandermerwei*, *E. zambesiaca* and *Resnova humifusa*. Sihra JK, Thumser AE, Langat MK, Crouch NR, Mulholland DA. *Nat. Prod. Commun.* 10: 1207-9 (2015);

Glucose oxidase progressively lowers bilirubin oxidase bioelectrocatalytic cathode performance in single-compartment glucose/oxygen biological fuel cells. Milton, RD, Giroud, F, Thumser, AE, Minter, SD, Slade RC. *Electrochimica Acta* 140: 59-64 (2014);

Effect of sleep deprivation on the human metabolome. Davies SK, Ang JE, Revell VL, Holmes B, Mann A, Robertson FP, Cui N, Middleton B, Ackermann K, Kayser M, Thumser AE, Raynaud FI, Skene DJ. *Proc. Natl. Acad. Sci. USA* 111:10761-6 (2014).

Words: 463

3. Supporting colleagues and influencing learning

In not more than 500 words please provide evidence of how the candidate supports colleagues and influences bioscience student learning beyond their department and institution

Alfred actively engages with the broader Learning & Teaching community, which was reflected by reviewers’ comments that formed part of his successful promotion to Principal Teaching Fellow (“Reader”) in the School of Biosciences & Medicine in 2019. Note that Alfred is the first, and to date, only Teaching Fellow to be promoted to this level within the School, which consists of 130 staff. He regularly attends pedagogically- focussed workshops, where constructive engagement and input has been noted by attendees.

In the School, Alfred arranges pedagogically-focussed seminars that inform colleagues understanding of pedagogical research methods and outcomes, e.g. “Blended Learning in

Practice”, Dr Christine Rivers, University of Surrey; “Enhancing Education through Gamification”, Prof Ian Turner, University of Derby. Alfred is now collaborating with the Department of Higher Education, University of Surrey to deliver joint seminars: “Engaging the Silent Majority”, Dr David Smith, Sheffield Hallam University; “Effective ways to communicate Science”, Dr Alfredo Carpineti, IFL Science.

Alfred has been involved with several student-staff partnership projects. One project with Julia Matyjasiak, a student on the BSc Biotechnology programme, aimed to elucidate what teaching excellence means to undergraduate students in the Biosciences. The study will be published as a book chapter in August 2020 (“Exploring disciplinary teaching excellence in higher education”). The chapter will include a reflective vignette, which will inform peers in their endeavours to form similar partnerships at their institutions. In a separate partnership under the University’s EduInterns scheme, students are developing learning resources for students.

Alfred is also collaborating with the Department of Higher Education on the use of concept maps to elucidate the professional development of teaching staff (Developing an online questionnaire to scaffold a collaborative concept mapping activity; Aguiar J, Bailey, IG, Bailey SG, Thumser AE, Trinder SL, Evans DL & Kinchin IM; PSU Research Review: 2019; Eliciting experts’ knowledge structures as a route into SoTL. Kinchin IM, Bailey I, Bailey SG, Trinder SL, Evans DL & Thumser AE, in preparation, 2019).

Following previous use of the EAT (Evans’ Assessment Tool) assessments framework (<https://eatframework.org.uk/>) and recent discussions at the “Maximising Student Success through the Development of Self-Regulatory Assessment” workshop, September 2019, University of Birmingham workshop, Alfred is developing a bigger project to understand tensions and differences in the assessment literacy of staff and students. The outcomes of this project, in conjunction with planned staff forums to disseminate good practice in Assessment & Feedback, will inform assessment strategy within the School and wider academic community.

A recent modernisation at Surrey is the use of online “labs” to help students in their preparation for laboratory practicals and here Alfred has facilitated two collaborations, namely with LearningScience (<https://learningscience.co.uk>) and the Open University. We are now actively collaborating with the Open University (The OpenScience Laboratory; <https://learn5.open.ac.uk>) to develop their on-line catalogue, whilst also collaborating on a joint study to assess the use of such facilities by students and determine their effect on student learning and confidence in a laboratory environment.

Words: 486

4. Exhibit innovation that has proven to improve their teaching practice to enhance student learning

In not more than 500 words please provide evidence of how the candidate exhibits innovation in their teaching practices to enhance student learning

Alfred has been instrumental in innovating and implementing Learning & Teaching practices in the School. His pedagogic approach first came to prominence in 2013 with a seminar on the

development of his assessment and feedback approach, following a talk presented to the School of Biosciences & Medicine (“Mind the Gap - Feedback to Enhance Student Learning”, Teaching & Learning Away Day 2013, University of Surrey), which demonstrated his reflective approach to student feedback. He subsequently organised workshops on good feedback practice which substantially improved feedback scores on module evaluations within the School. Alfred is planning refresher workshops for colleagues this autumn, to maintain the School’s excellence in feedback.

In his modules, Alfred introduced various initiatives to improve student learning, the most prominent being his Writing Workshops for Level 5 students, in collaboration with the library Learning & Development team, and the preliminary outcomes have been presented at internal and external seminars (Surrey ExciTeS 2019, University of Surrey; Biosummit 2019, King’s College London), with positive feedback provided by attendees. Another of Alfred’s unique innovations at Surrey is the use of on-line, open book multiple choice tests, rather than the customary in-class tests; this approach examines conceptual understanding and critical thinking, rather than rote learning, encourages self-efficacy and reduces examination anxiety for the student cohort.

Alfred is a proponent of active learning, using think-pair-share quizzes in his lectures and small-group workshops to encourage peer learning. He shows an awareness of the classroom as a social space and uses responseware (PollEveryWhere) to engage all students, allowing students to post comments anonymously while also moderating

comments to prevent disruptive or offensive posts. Furthermore, Alfred has led on the introduction of electronic textbooks for all undergraduate BSc cohorts, introduced a student-led Peer Support Scheme, in response to student requests, and actively engages with the Centre for Wellbeing and the Additional Learning Support team.

A recent visit by the School’s External Advisory Board, where Alfred gave a presentation on “Learning & Teaching: Strategic Opportunities”, was followed by excellent feedback that the “direction of travel seems right” with encouragement to develop pedagogic research and Communities of Practice. The School’s Senior Management Team, which includes Alfred, is now revising the Learning & Teaching Strategy that will include Alfred’s proposals to develop teaching excellence; design an inclusive curriculum; improve assessment and feedback practice; recognise student and staff wellbeing.

Words: 389