1. My Teaching Philosophy

“Dr. Nathan Wales is an outstanding lecturer and I would hope that he is recognised for his immense contribution towards teaching in the university. He fully deserves this award” (anonymous teaching award nominee)

I am student-centred in my approach to teaching. My experience has given me a strong foundation for future successful teaching at University, and I am continually looking at ways of improving my teaching effectiveness. This begins with a sound philosophy on teaching. Student evaluations and feedback throughout the semester are crucial to improving my teaching through self-reflection, and passing such improvements on to my students. This requires ongoing monitoring and evaluation of my teaching performance and student feedback.

Where relevant and practicable I incorporate my own research into my teaching. I feel it is important to be able to communicate concepts, methods and scientific process to students based on the learning developed from my own research. When explaining concepts, methods and analysis in teaching I endeavour to use examples which students can relate to given their personal experience of geography in their lived environment.

Being an effective scientific communicator is a continually evolving process. I have high standards for myself, and I expect the same of my students, and this can only be achieved through effective scientific communication. Science is not always fun, but using different approaches to teaching keeps students engaged and interested, encouraging them to want to learn.

Making the effort to learn about my students is a necessary part of teaching. Knowing my students names, which can of course be challenging in courses with large numbers, as well as getting to know their individual strengths and weaknesses is important to improving the ability for individual students to learn. This allows me to target my teaching to individual student needs if required, either one-on-one (such as in the lab environment) or as part of the larger student group.

2. Teaching Responsibilities

Since June 2013 I have been developing and teaching courses as part of the Geospatial Science Program within the School of Geography, Earth Science & Environment in the Faculty of Science, Technology & Environment at The University of the South Pacific. Teaching geospatial science courses involves practical (field and laboratory based) and theoretical GIS and remote sensing, including distant and flexible learning online and face-to-face at Laucala and regional campuses.
My primary teaching responsibilities are Course Coordinator of GS100 (Geography Techniques and Methods), Course Coordinator of GS201 (Geographic Information Systems 1), and Course Coordinator of GS211 (Remote Sensing 1). I also assist in teaching components of GS350 (Project in Geospatial Science), GE403 (Research Methods in Geography) and EV405 (Field and Laboratory Methods in Environmental Science) as required.

Between 2014 and 2016 I have been wholly responsible for developing, coordinating and teaching four flexi-school courses as part of a tailored Geospatial Science Program for students at USP Marshall Islands campus. The courses I have taught as part of this program include GS100, GS211 and GS201. In November-December this year I will teach the final course GS301 (Geographic Information Systems II).

All of these courses involve variable amounts of lecture, field-based and computer laboratory-based teaching. For all of the courses I teach student numbers vary between approximately 50 through to 340 in number. This poses a challenge in course delivery. For example, for courses with larger numbers (such as GS100) I need to apply different strategies and approaches to ensure every student has equal opportunity to maximise their learning.

I am also responsible for the supervision of postgraduate students. For example, one student who I am primary supervisor for currently is Henry Kaniki, a MSc student from the Solomon Islands who is researching sea level rise and nesting habitat of hawksbill turtles in the Arnavon Islands, Solomon Islands. Providing primary supervisory support to students located elsewhere in the Pacific, such as for Henry, is both challenging and rewarding and has required me to adopt a range of teaching and supervision support strategies.

3. Portfolio Evaluation Criteria

3.1. Approaches to teaching that influence, motivate and inspire students to learn

I am student-centred and in my time at USP have maintained consistent teaching methods which engage students and promote a learning style which is appropriate to the subject being taught and the students’ background. My enthusiasm and interest in the subject is reflected in the fact that I have either worked or taught in the subject for the past twenty-five years. Transferring this information effectively to students has been achieved by adopting various approaches to learning, in order to reach the full range of students in terms of background, culture and language limitations. Very positive course feedback provided by students over the past three years is evidence of the success I have had in engaging students in the learning process. This feedback was provided directly via email, through direct conversation and via the formal Faculty course feedback process. Examples of this are given in Criterion 3.3.

I use a range of methods and approaches to teaching in order to “reach out to” and inspire students. This includes practical examples from my own and other relevant research, particularly research related to The Pacific, the use of multiple methods in teaching including audio recording lectures and directly linking audios to written material. In addition, I explain and demonstrate concepts in a variety of ways, using different examples and different ways of looking at particular concepts or problems. This is important in all teaching, but my experience is that it is particularly important at USP given the diversity of students both culturally and in terms of educational background. Moodle
tools including the conditional tool, SMS notification and interactive class forum pages are used to allow students to post questions to myself as coordinator but to also support each other in the learning process.

Additional comments\(^1\) from my nominees that relate to this criterion are described below:

- A lecturer who later became my working supervisor. I have learnt a lot from him in academia, and of good character.
- By encouraging students to have open communication and free thinking with him, this makes them feel that their work is recognized and valued.
- He was one of the lecturers I was working with and he had lots of new ideas and his teaching techniques were quite good.
- For students to be able to maximize their full potential, finding ways to motivate students is important to effective learning. The nominee supports students to build confidence and personal capability through the learning environment, in particular the face-to-face laboratories and tutorials and the field-work components of the course. In this process the nominee has demonstrated the ability to give a clear explanation of the intended outcomes of the teaching activity or exercise, connections to related activities and an overview of the lesson at a level that is appropriate to the course and students. In addition, the nominee gives the students the ability to engage their full capacity for learning, to think outside the box and to feel that their learning ability has the potential to contribute significantly to the subject and even to the global geography community.

### 3.2 Development of curricula and resources that reflect a command of the field

I frequently use research-led approaches in developing my teaching resources and activities. I think it is important for students to understand and appreciate the links between research and teaching, and how they can enhance each other. For example, while teaching GE403 (Research Methods in Geography) and in EV405 (Field and Laboratory Methods in Environmental Science) I use my own research material to discuss different types of research methods including the benefits of combining qualitative and quantitative research. In the courses I coordinate I bring my research into the teaching activities and as a learning exercise have students develop their own hypothetical research activities. In GS201 and GS211 for example I often demonstrate examples in my lecture material that relate directly to my research with which I am very familiar. Often difficult concepts and ideas can be better explained, or explained with more detailed examples, from my own research. Last semester in GS100 for example I used the statistical and mapped outputs of land cover categories of a remote sensing research activity I had undertaken in Sulawesi Indonesia to explain to students how they could visualise and quantify land cover change in a catchment in Fiji. This approach often involves discussing computer laboratory tasks in the lecture environment and vice versa.

By utilizing a range of resources for effective teaching I see this as a reflection of my command of the field of Geospatial sciences, and this gives students the chance to maximize their learning. Different approaches to learning that I have used include group learning (large and small), face to face, online such as discussion forums and announcements (Moodle) and specific work-based activities.

\(^1\) Comments have been edited only to improve legibility
Throughout different stages of the teaching challenging topics covered in my courses are re-visited (in both online, laboratory, tutorial and lecture forums). I also encourage students to arrange to meet one-on-one if they feel they need specific attention on any aspect of the course. This has been of great benefit to many students, and has improved their learning, as demonstrated in their improved grades. Lectures are delivered in such a way as to introduce concepts, to give examples where these concepts can be applied, to re-iterate concepts and lastly to summarise the key learning. Small group exercises are used to bring together/focus the various aspects of science into the teaching and learning environment - such as practical field-based activities, theory (via lectures and tutorials), laboratory work, quantitative analysis and qualitative elements such as oral presentations.

For at-risk and late students, additional lab classes and repeat lectures, as well as additional mentoring sessions are offered. In addition, I encourage students to attend the various Faculty workshops such as essay writing, exam preparation and time management. I recognize the importance of using these different modes of learning support. I use marking rubrics when marking assignments and tests and create and distribute marking criteria to students to use as a guide when they are completing assessments such as lab reports. By providing this to students they are able to have a clearer understanding of what is expected in their assessments given the level of study they are undertaking. More generally it helps students develop their skills as they progress through their degree. An example marking criteria I use for GS211 is shown below:

<table>
<thead>
<tr>
<th>Marking Criteria</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>All work is complete and demonstrates exceptional understanding of the material. Writing clarity and organization is exceptional.</td>
<td>8-10</td>
</tr>
<tr>
<td>All work is complete and demonstrates good understanding of the material. Writing clarity and organization is good.</td>
<td>6-7</td>
</tr>
<tr>
<td>Some work is not complete and/or demonstrates adequate understanding of the material and/or writing clarity and organization needs improvement.</td>
<td>5</td>
</tr>
<tr>
<td>Some work is not complete and/or demonstrates a low level of understanding and/or writing clarity and organization needs improvement.</td>
<td>0-4</td>
</tr>
</tbody>
</table>

Additional comments from my nominees that relate to this criterion are described below:

- Great style of teaching, and takes a proactive approach to students’ needs.
- By providing materials such as books, promoting eLearning through Moodle and other practical or specialized resources, which helps students understand and learn more efficiently.
- Face-to-face interaction and more time devoted to students if they had any questions, including extra classes.
- A variety of learning resources are used in the course. By drawing on many different learning tools students are able to get the most out of their learning. For example, during practical classes students work individually and in small groups to problem solve. In addition, concepts and challenging content is re-iterated via whiteboard and one-on-one discussions around the computer terminal. A question and answer session is used to end the class to give students an additional forum from which to clarify particular concerns or challenges they may face. This approach has been effective in fulfilling the students learning.
3.3 Approaches to assessment and feedback that foster independent learning

Given the nature of USP, with students from across the region and with diverse educational and cultural backgrounds, it has been important to try and find ways to motivate students to support learning that is most effective for them. I work patiently with the students in making sure we set short-term learning goals while recognizing and acknowledging when certain milestones are reached. The importance of using different teaching tools is also recognized, so as to keep students interested and to engage the students from across the region in their different ways of learning most effectively.

Student feedback that I obtain throughout the semester, directly from students and via the formal Faculty course feedback process, is reflected on and incorporated (or at least considered) in the future design and delivery of my courses where appropriate. In addition, feedback from colleagues, in particular those engaged in teaching similar courses, is obtained and also considered in future teaching activities.

Student feedback through student evaluations has been essential to improving my teaching in order to maximise student learning. This is an evolving process in which I acknowledge the importance of both positive and negative feedback in order to improve my teaching effectiveness. A brief examination of end-of-semester student evaluations from a selected course which I coordinate (GS100) is used below to highlight the importance of the student evaluation process. The results of my GS100 student evaluations for Semester 1, 2015\(^2\) are shown in Table 1. A “response scale” provides an indication of student satisfaction in particular courses ranging from strongly agree to strongly disagree. In Table 1 the percentage of students who chose agree in their response (agree includes the response scale “agree” and “strongly agree”) is compared between GS100, the School of Geography, Earth Science and Environment (SGESE), and the Faculty of Science in general.

<table>
<thead>
<tr>
<th>Criteria Description</th>
<th>GS100 % agree</th>
<th>SGESE % agree</th>
<th>Faculty % agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 The course covered what was in the course outline</td>
<td>98.61</td>
<td>94.78</td>
<td>93.98</td>
</tr>
<tr>
<td>2 The assessment tasks and workload were appropriate for the course and learning outcomes</td>
<td>90.28</td>
<td>91.44</td>
<td>89.91</td>
</tr>
<tr>
<td>3 I received helpful feedback on my work in this course.</td>
<td>88.89</td>
<td>88.10</td>
<td>86.24</td>
</tr>
<tr>
<td>4 Where applicable, the information technology in teaching and learning was very effective</td>
<td>94.44</td>
<td>91.44</td>
<td>89.55</td>
</tr>
<tr>
<td>5 The learning resources (library, study guides, handouts, texts, Moodle resources, etc) were adequate for my study in this course</td>
<td>93.06</td>
<td>91.65</td>
<td>89.48</td>
</tr>
<tr>
<td>6 Where applicable, I received appropriate support from the Student Learning Support teams</td>
<td>61.11</td>
<td>67.01</td>
<td>70.45</td>
</tr>
<tr>
<td>7 Overall, I had a good learning experience in this course</td>
<td>94.44</td>
<td>93.53</td>
<td>90.66</td>
</tr>
</tbody>
</table>

Table 1: Student evaluations of GS100, SGESE and Science Faculty, Semester 1, 2015

\(^2\)Most recently available data provided (2016 data was not available at time of writing)
As can be seen in criterion 7, the learning experience for students was generally positive, ranking slightly higher than the results achieved by SGESE and The Faculty overall. It is noted that criterion 2 is slightly lower than the response recorded for SGESE as a whole. This may reflect the high standards I expect of my students, standards which are also realistic in terms of course workload. Continued monitoring and evaluation of student feedback at the end of each semester allows me to recognise areas where I can improve or make change to my teaching including, in this case, appropriateness of assessments and workload.

Criterion 6 does not necessarily reflect the performance of my teaching. It is acknowledged however that as course coordinator I can improve the effectiveness of the learning support provided by the University Student Learning Support (SLS) by assisting and encouraging students to access this important learning resource. This is something I continually do throughout my courses by posting important information such as upcoming learning support activities provided by SLS and having SLS staff present to my classes to explain the support services they provide and how they might benefit my students.

The figures in Table 1 suggest that overall my students had a positive learning experience in GS100 in semester 1, 2015. However, while charting student evaluations is an important way to improve teaching, individual student feedback is also necessary. Some examples of student feedback for GS201 (Semester 1, 2015), and the ways in which I used such feedback to improve my teaching, are provided below. I frequently need to think critically about how to use the feedback most effectively. These examples have been taken from the student feedback provided to me by the Faculty of Science, and include both positive and negative feedback (both of which are important to improved teaching).

1. “I think there should have been a mentor for this course so student can learn more from them”

   The benefits of including mentoring activities for GS201 are significant, and this activity is now well established. Mentoring allows students to discuss their specific learning needs in a neutral setting.

2. “The best thing in this course that I could say is having a good lecturer and tutor in terms of how well they present the notes to the students and also how they have helped us a lot especially when doing the lab activities in and out of class”

   Effectively integrating the approach of the lecturer with the tutor is a constant challenge. This requires me to continually engage with the tutor/lab assistant during semester to ensure consistency and to address particular challenges students are facing in class, in the lab and in the field.

3. “Extra tutorial lessons would be much appreciated for students facing difficulty”

   Extra tutorial and lab sessions are offered during semester for GS201 and related courses. These are particularly important for at-risk students and for particularly challenging topics.

   I also seek to improve my teaching effectiveness by taking into consideration student queries and concerns raised by students during the semester. I see this as important given that some of the nuances or details of student learning which arise during the semester are easily lost from memory by students when the time comes for them to provide course feedback at the end of semester.
Where practicable I incorporate such feedback into my courses during semester. For example, in Week 3 of my course GS201 I introduce one of the most important concepts in Geospatial science, i.e. datums, projections and coordinate systems. This is probably one of the most challenging concepts for students studying 200 level Geospatial science courses. This question usually serves as a good indicator separating individual students’ performance. As a foundation concept I now reintroduce this topic in the following week of semester, and incorporate it into a short online quiz. On assessing the quiz I identify those students who continued to have difficulty with the concept. I then explained the concept again in a lecture using different examples and both text and graphics to help struggling students. Lastly, an additional lab class is run to examine this topic further.

Additional comments from my nominees that relate to this criterion are described below:

- Very reliable in terms of giving feedback and explaining it thoroughly when clarification needed.
- By using initiative, he has the ability to assess students’ individual needs and provide positive reinforcement to help students overcome their difficulties.
- The nominee always makes himself available to students for consultation, and is ready to answer questions asked by students, and to provide appropriate feedback on assessments (verbal and written). This is always carried out appropriately and to a high standard. Note that this is often a challenging task in a course environment with such large student numbers. This process is important to the students ability to learn independently and with confidence and self-belief, and is reflected in the improvements seen in the students grades.

3.4 Respect and support for the development of students as individuals

I understand that by gaining the respect of my students as individuals their performance will improve (this is evidenced by good rates of attendance, an openness to ask questions and even question the teacher where appropriate, and a general feeling of ownership and appreciation by students). This has been achieved by my own self-awareness, for example in supporting students who are otherwise lacking in confidence or who may be having personal challenges, encouraging students who might not otherwise question superiors (which as a teacher is often the case), acknowledging milestones that individual students may have reached and using this to leverage their future learning success, and using different methods (such as individual and group-based) to support the ways that different students engage and interact in the process of learning.

My ability to recognize individual needs of students includes those with disabilities who face significant challenges compared with other students. For example one of my students in GS100, Fulori Cavukiliu, is blind. I was able to provide appropriate learning support for Fulori such as working with USP Students with Disabilities support to ensure suitable test and exam environment accommodation. In addition, I developed special exams and tests that could be read by screen-reader software, suitable for the blind. Prior to teaching at USP I worked with students with disabilities in a teaching support role. I am able to identify extra support and consideration needed for students with disabilities.

I also utilise other teaching resources provided by the University, in connection with my own teaching, to support the development of students as individuals. For example I encourage and
facilitating one-on-one consultations between students and myself and between students and student learning support specialists from within the University, encouraging students to attend academic skills workshops and peer mentoring sessions. These “external” teaching aids are important for student learning as some students often find it challenging to discuss their specific learning needs outside the structure of the course.

I am able to identify, encourage and embrace qualities and potential of students as individuals. For example I am frequently asked to provide student references and letter of support for potential employers, sponsors and scholarship providers. This process allows me to tailor my responses based on the attributes and requirements of the individual students.

Additional comments from my nominees that relate to this criterion are described below:

- Respect students’ needs and understands their commitments. Our course GS201, was made up of students from different racial and regional backgrounds, and he was very comfortable around them as a leader and a guide.
- By being enthusiastic, he often praises his students and recognises them for their contribution and this has made the classroom a friendly place where students felt heard and respected.
- He was very respectful and helpful to the students.
- The nominee treats each student as an equal, and engages with students as though the teacher and student are equal. In this way a mutual respect is gained between student and teacher. He offers his time to all students through one-on-one consultations in an environment in which they feel most comfortable. He also supports students who may be having personal or other difficulties by giving them additional time to complete assignments or alternative options for other assessments such as tests and practical exercises.

3.5 Scholarly activities that have influenced and enhanced learning and teaching

The use of professional knowledge is essential to many of my learning activities. For example, I have been proactive in transferring skills and knowledge gained from supervision and support of research students at USP in improving teaching content. Through research collaboration and dissemination of research outputs I have contributed to my own teaching practices and also to the teaching practice of colleagues (both junior and senior) at USP and from other universities. An important part of this exercise is to ensure teaching content is current and reflects changes in the subject field. Practical examples used to demonstrate particular aspects of teaching are chosen (where possible) as appropriate and relevant to different students background or unique position in the Pacific. Frequently the examples used relate directly to my own research activities, thereby drawing on my professional knowledge. For example when teaching coastal change, inundation and flood modelling to students, case studies and data are chosen that contextualizes the learning for students, and that draw directly from my own research activities. One example of this stems from my numerous Geospatial Sciences teaching activities for students from the Marshall Islands. Other examples of other research activities which I have used, and others I will be using to use to enhance my teaching include:
1. A current research project which I am collaborating on with colleagues from The University of Sydney, University of Western Australia, University of Auckland and University of Sterling in the United Kingdom is “Spatially Assessing Environmental Livelihood Security in the South Pacific using Geospatial Information”. This project uses Ba catchment as the main case study. This has been funded by the European Union (PACE-NET), for which I was a contributor. A peer-review article related to this project is forthcoming; and

2. A research project which I am currently collaborating on with colleagues from The University of Sydney and University of Western Australia titled “Climate-smart landscapes for promoting sustainability of agricultural systems in the Pacific”. This has been funded by ACIAR, for which I was a contributor.

I also have two upcoming peer-reviewed research papers as follows, the contents of which I use as part of my teaching in GS201, GE403 and EV405:


2. Wales, N. 2016. Multi-decadal change in the spatial pattern and areal extent of forests at Angkor using coarse scale satellite imagery. To be submitted to Australian Geographer, August 2016

Other activities that I have undertaken to develop and improve my teaching include course coordinator workshops run by the Faculty of Science. These have assisted me in developing my ideas and strategies for teaching from colleagues and peers.

Additional comments from my nominees that relate to this criterion are described below:

- I learnt a lot from him in terms of GIS, and related topics. He is also a very good person to talk to if there is confusion on future plans. An experienced, yet humble person.
- By being knowledgeable in developing effective teaching strategies to improve and meet the specific learning needs of students.
- He motivated them and gave them advice on how to be more productive with learning and time management.
- The nominee shows ongoing commitment to student learning, and his own learning, by being proactive in contributing to the development of effective and up-to-date teaching practices. This has been achieved by drawing on his own research activities, from research outcomes of others and by staying up-to-date with changes and advances in the spatial science industry. In addition, teaching content and methods are shared with colleagues who have similar teaching and research interests, and this has had a positive impact on teaching and learning outcomes.
4. Closing

My student-centred approach to teaching combined with my experience has given me a good basis for effective teaching. I am continually looking at ways to improve my teaching through monitoring and evaluating my progress, using student and peer feedback, professional development and my own research activities.

Some closing comments provided by nominees for this award are listed below:

- I have been assisting Dr Nathan Wales for the past 3 years and I believe he deserves the award for his commitment towards Learning and Teaching at USP.
- Dr. Nathan Wales is an outstanding lecturer and I would hope that he is recognised for his immense contribution towards teaching in the university. He fully deserves this award.
- Overall he is a good/supportive and fun person to work with, plus he share and gives suggestions where needed and he will give time if help is needed.