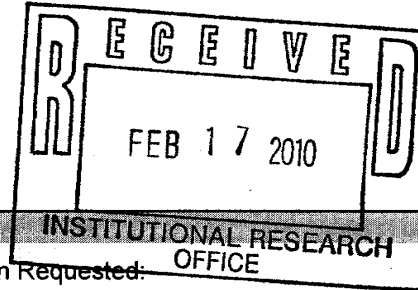


**University of Hawai'i  
Code Request Form**



**I. REQUESTOR CONTACT INFORMATION**

Name: Richard Fulton  
 Title: Vice Chancellor for Academic Affairs  
 Phone Number: (808) 235-7443  
 Email Address: fulton@hawaii.edu  
 Campus/Office/Department/Address: Windward Community College  
Vice Chancellor for Academic Affairs  
45-720 Kea'ahala Road  
Kaneohe, HI 96744

Action Requested:  
 NEW Program Code (new major/concentration, etc.)  
 NEW Subject Code  
 Change of existing code  
 Type (subject, program, etc):  
 Old: \_\_\_\_\_  
 New: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

**II. CODE REQUEST**

Academic program code preferences for consideration:

**NEW Program Code**      Effective Term (semester/year): Fall 2009  
 Major: \_\_\_\_\_ Major Description: Geographic Information System & Global Positioning Systems Is this major financial aid eligible?       YES     NO  
 Is the major code being used the same way at other UH campuses?       YES     NO      Comment: \_\_\_\_\_  
 Does the same or similar major code exist in Banner?       YES     NO      If YES, please list code: GIS

Concentration (if applicable): \_\_\_\_\_ Concentration Description: \_\_\_\_\_  
 Is the concentration code being used the same way at other UH campuses?       YES     NO  
 Does the same or similar concentration code exist in Banner?       YES     NO      If YES, please list code: \_\_\_\_\_  
 Attach concentration to program code?       YES     NO

Level:     Undergraduate     Graduate     First-Professional     Other: \_\_\_\_\_  
 Degree/Certificate: Certificate of Competence  
 College: IN = Instructional      Department: Social Science

If requesting a program name change, will current students be grandfathered in under the old program name?       YES     NO

If requesting a program name change, will the old code be available for:  
 Recruitment?       YES     NO      List the end term of old code: \_\_\_\_\_  
 Admissions?       YES     NO      List the end term of old code: \_\_\_\_\_  
 General Student?       YES     NO      List the end term of old code: \_\_\_\_\_  
 Academic History?       YES     NO      List the end term of old code: \_\_\_\_\_

**NEW Subject Alpha/Code**      Effective Term (semester/year): \_\_\_\_\_  
 Code: \_\_\_\_\_ Description: \_\_\_\_\_  
 College: \_\_\_\_\_ Department: \_\_\_\_\_  
 Does the same or similar subject code exist in Banner?       YES     NO      If YES, please list code: \_\_\_\_\_  
 Is the subject code being used the same way at other UH campuses?       YES     NO

**University of Hawai'i  
Code Request Form**

OTHER: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Please briefly describe your request and explain why you are requesting the codes: Offering a Certificate of Competence in GIS/GPS at Windward Community College will provide students with job entry level skills in GIS/GPS, or an opportunity for job upgrading. The current projected number of students who will enroll in and complete this certificate is 5/year; however, this number is expected to increase because 1) WCC will be the only UH campus offering a certificate in GIS/GPS and 2) Research shows that students with GIS skills are in great demand in Hawai'i, across the country, and around the world.

**III. SUPPORTING DOCUMENTATION**

Please attach the required supporting documentation. See *Guide to Academic Program Actions and Approval* at: [http://www.hawaii.edu/vpaa/cms/guide\\_to\\_acad\\_prog\\_121006.pdf](http://www.hawaii.edu/vpaa/cms/guide_to_acad_prog_121006.pdf)

- BOR minutes from \_\_\_\_\_ (date) meeting with supporting documentation provided to BOR
- Memo from campus Chancellor
- Signed memo from UH President
- None required according to the Guide to Academic Program Actions and Approval


**IV. CAMPUS VERIFICATION**

The appropriate parties (faculty, administrators, registrar) have been consulted.

Richard Fulton

Name of Requestor (print or type)

Signature



2/12/10  
Date

Send completed form with supporting documentation to:

Institutional Research Office (Attr: Lynn Inoshita or Christine Shaw) • 1633 Bachman Place • Sinclair Annex 2, Room 4 • Honolulu, HI 96822  
Fax: 808-956-9870 Phone: 808-956-7532

For Internal Use Only:

Appropriate Documentation Received:  YES  NO

Approval Status:

Major code:  YES  NO

Concentr. code:  YES  NO

Program code:  YES  NO

Subject code:  YES  NO

NOTES:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Entered into SMAPRLE/SOACURR: \_\_\_\_\_

Entered into STVMAJR: \_\_\_\_\_

Entered into STVSUBJ: \_\_\_\_\_

Code processing completion date: \_\_\_\_\_

Copies sent to: \_\_\_\_\_

**CERTIFICATE OF COMPETENCE<sup>i</sup>**  
**Geographic Information System and Global Positioning System**

I. INTRODUCTION

A. Date

September 11, 2008

B. Name of Certificate of Competence (CoC)

Certificate of Competence in Geographic Information System (GIS) and Global Positioning System (GPS)

C. Date of proposed implementation

Fall 2009

D. Summary of proposal

The Certificate of Competence in GIS/GPS certifies that a student has successfully completed two GIS/GPS courses. These courses will provide a student with job entry level skills in GIS/GPS, or an opportunity for job upgrading.

II. OBJECTIVES AND NEED FOR COURSE OR COURSE SEQUENCE

A. Objectives

Provide students with entry level or job upgrading skills in GIS (ArcGIS 9 software by ESRI)/GPS and other computer skills through completion of (a) five credits of GIS/GPS courses.

B. Need

Currently WCC offers one course in GIS/GPS (GIS 150), which introduces students to ArcGIS 9 software and a GPS unit. To make full use of GIS, however, more hands-on experience with research application and other basic data management skills are necessary. For support from WCC students, see Appendix 1 attached.

Some government offices (US Geological Survey, State of Hawai'i Department of Land and Natural Resources, Honolulu City & County Department of Planning & Permitting) and business enterprises (ESRI, Belt Collins, Castle & Cooke, Group 70, Helber Hastert & Fee, Parsons Brinckerhoff) responded positively to queries about the value of this certificate proposal (see Appendix 2). This establishes a

need for a certificate program that can augment and clearly clarify the skill level of a student.

C. Duration

Indefinitely

D. Target group

The target group is students, who seek entry-level job skills or upgrading in the areas of environmental management, conservation, planning, research analysis, survey, real estate, utility management, and more.

Currently the projected number of students who will enroll in and complete this certificate is five students per year. The potential to increase this number exists because students with GIS skills are in great demand in Hawai'i, across the country and around the world. Some information resources:

(1) Local (Hawai'i) jobs

Hawai'i Workforce Informer (<http://www.hiwi.org/>): A local listing of companies looking for professionals with GIS skills

(2) National and international jobs

The GIS Jobs Clearinghouse (<http://www.gjc.org/>)  
GISjobs.com (<http://www.gisjobs.com/>)

(3) Salary range:

GIS salary survey (<http://www.gisjobs.com/survey/countries.jsp>)

E. Offered at any other college in the system?

- (1) Pacific EMPRINTS offers "Geographic Information Technologies for Emergency Preparedness and Response." This four-day course (\$75) introduces participants to GIS and GPS technologies and their applications in emergency management, preparedness and response. Participants completing the module will receive a Certificate of Completion from ESRI. (ArcGIS 1 certificate) The class is offered via UH but the certificate is not issued by UH. This course represents a brief introduction to ArcGIS/GPS.

### III. DESCRIPTION OF COURSE OR COURSE SEQUENCE

#### A. Curriculum

Requirements (5 credits):

- (1) GIS 150 (Introduction to GIS/GPS): 3 credits

- (2) NREM 250 (GIS Application in Environmental Science and Natural Resource Management): 2 credits; OR  
GIS/NREM 199/299 (Independent studies): 2 credits

GIS 150 prepares students with ArcGIS 9 (currently we have a basic ArcView-level license and use the version 9.3). The textbook is ESRI's *Getting to Know ArcGIS Desktop* 2nd edition. Students will go through the textbook, complete lab exercises, and produce a semester project. They are thoroughly exposed to ArcGIS 9 software in this introductory class. The class also exposes students to a GPS unit and how to download GPS data to ArcGIS.

NREM 250 is an overview of GIS applications. Students are also introduced to the basics of integrating GPS and remote sensing into GIS to solve problems.

GIS 299 is an independent study course. Students participate as interns at various local government offices or private companies to learn hands-on application of GIS/GPS.

#### IV. RESOURCE REQUIREMENTS

A. Additional staff required

None

B. Additional facilities or equipment required

None. WCC already has 25 lab-kit licenses for ArcGIS 9 on 20 computers in the No'eau 124 Computer Lab and 5 computers in Hoa'aina RS/GIS Center.

C. Budget

Annual maintenance fee for the ArcGIS 9 lab-kit: \$350 (currently paid by PaCES)

<sup>i</sup> Certificate of Competence (CoC): A college credential for students who have successfully completed designated short-term credit or non-credit courses which provide them with job upgrading or entry-level skills. The issuance of a Certificate of Competence requires that the student's work has been evaluated and determined to be satisfactory. Credit course sequences shall be at least 4 but less than 10 credit hours. In a credit course sequence the student must earn a GPA of 2.0 or better for all courses required in the certificate.

## Appendix 1. Support from WCC Students

### 1. E-mail from Mr. Steven Wong (GIS 150 Spring 2007)

Hey Toshi,

It's Steven Wong-Donato. I think the idea of having another class to apply the information we learned in GIS 150 is a very good idea. There aren't many GIS classes available to us at WCC and your idea of adding another one sounds great.

Steven Wong

### 2. E-mail from Mr. Chris Nishioka (GIS 150 Spring 2007)

Aloha Toshi!!

I think that your program would be excellent in opening the doors to this new technology. I'm currently in the Environmental Science program at UHH. UHH does not offer any real world opportunities like you're proposing....

Please let me know if you decide to offer the course online (NREM 250)!!! I'm sure that a lot of my fellow classmates, including myself, will be very interested in the program.

Aloha!!!

Chris Nishioka

### 3. E-mail from Ms. Kari Nishioka (GIS 150 Fall 2005)

Dr. Ikagawa,

I am very supportive of your efforts in pursuing a certificate program for GIS competence. Both my brother Chris Nishioka and I have benefitted greatly from your introductory course and would definitely come back to the WCC campus to obtain a certificate should it be offered.

I currently work for the Navy as an archaeologist. As a person just starting my career I know how important a certification like this is. With no other real alternative to show GIS competence I am being sent to ESRI I and II\*. The certificate program you are proposing would be a perfect alternative and it would give you a professional certificate that is very useful for almost all career. It would certainly give my career a boost!

GIS is a specialized skill that is in high demand. You have my brother and I's full support. Please keep us informed of the Universities decision.

Mahalo and Aloha,  
Kari Nishioka

\*Note: "ESRI I and II" means "Introduction to ArcGIS I" (\$980, 16 hours/2 days) and "Introduction to ArcGIS II" (\$1,470, 24 hours/3 days) workshops offered by Environmental Systems Research Institute (ESRI). Upon completion of the workshop, a certificate is issued by ESRI.

4. E-mail from Mr. Brandon Whitaker (GIS 150 Fall 2005)

Toshi-

This sounds like a good program / certificate. I am interested in taking NREM 250. Right now I am in the college of engineering at manoa so I don't have too much time but if you could possibly send me a syllabus of NREM 250 or other details on this class it will be appreciated.

Thanks for the information.

-Brandon Whitaker

## Appendix 2. Support from Local Business

### 1. E-mail from Mr. Royce Jones, ESRI

Toshi,

Good to hear from you. I think the certificate is a great idea and it could very well make a difference. While the state may seem "saturated", it is because they don't use GIS enough and don't have enough GIS positions. This will change over time.

I think the place where there is immediate demand is in the private sector. Planning and engineering companies are always looking for people with GIS skills. I think a certificate would look better on a resume than just saying I took such and such GIS course.

Do you have any sort of internship program where they can get some on-the-job experience? That would be very helpful also.

- Royce

### 2. E-mail reply from Mr. Rob James, Helber, Hastert & Fee

Toshi,

1. Do you see any need for this kind of certificate? For example, if your applicant had this certificate, would you consider it an advantage?

Yes, I would. I've had difficulty in the past accurately assessing how much GIS knowledge/experience someone really has.

2. Would you consider accepting an intern who is pursuing this certificate at WCC?

Most definitely. We should have a project starting around this fall for a GIS intern if you know of any interested students who have a good understanding of editing in ArcGIS and are detail oriented.

3. Do you have any suggestions for the certificate? Different requirements? More courses?

The lack of a solid cartographic education is probably my biggest gripe with the student's I've worked with. And not using geodatabases. And not understanding the importance of the data modeling process.

If the internship is optional, will there be two levels of certificates? I'd assume that the student who actually got to work for a company/agency doing GIS would have picked up a whole lot more tips, tricks, and experience and would make them the better hire and



therefore their certificate would mean much more to an employer vice the one who just did the classwork.

Please let me know if I can be of any more help, and I look forward to contacting you in the fall should our internship opportunity materialize in that time frame.

v/r,

Rob

3. E-mail reply from Mr. Gerald Andrade, Parsons Brinkerhoff

Aloha Toshi,

I think the effort you're making to develop a certification program for this field is fantastic!

I've cc'd Rachel Adams whom I feel is also an excellent candidate for soliciting advice in this arena. Rachel manages the development and application of GIS and GPS systems for a large storm water management program that we're blessed to be assisting the State DOT in.

My input in response to your questions is;

1. Do you see any need for this kind of certificate? For example, if your applicant had this certificate, would you consider it an advantage?

Yes I believe that the certification that an applicant has gone through the course outline you've provided would definitely be a positive thing for them.

2. Would you consider accepting an intern who is pursuing this certificate at WCC?

Depending on our work load we generally do welcome interns studying the engineering and planning fields. We can't make guarantees but would certainly consider it.

3. Do you have any suggestions for the certificate? Different requirements? More courses?

GIS is so flexible on its use, I'm trying to imagine how one could add to the outline you've developed while still keeping things general and I can't think of anything. Those wanting to integrate GPS and GIS to develop asset management systems for example may do well to have some database skills, whereas those interested in using GIS for analysis may be better off with statistical and mathematical analysis skills. I think for what you're trying to accomplish the outline you've established is fine.

Hope this helps!

Gerald

4. E-mail reply from Mr. Dean Minakami, Castle & Cooke

Hello Toshi,

As Royce probably told you, at Castle & Cooke we are making a concerted effort to provide employees with a basic understanding of GIS. I think that a Certificate of Competence could be useful for some of our employees. With regard to your first question as to whether it would provide an advantage in hiring, at Castle & Cooke it would depend on the position. Because we're just starting to implement GIS on a corporate level, right now there may not be too much of an advantage. However, as GIS becomes more ingrained in our work, I could see having GIS skills as being very advantageous for some positions, particularly for the engineering and planning positions. At my former place of employment, which was an Engineering/Planning firm, a Certificate of Competence in GIS would have been very advantageous for applicants.

For your second question about the intern, the answer is definitely YES! We had advertised for a GIS intern at UH Manoa last year but received no responses. I believe one reason is because our office is located at Mililani Technology Park so it's too far for many students. If you know of any students looking for a GIS intern position, please let me know. We can provide them with practical experience and some compensation as well.

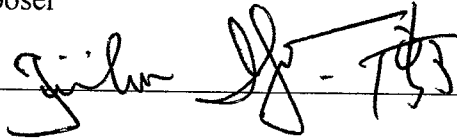
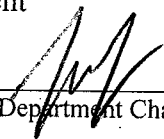
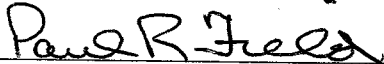


With regard to suggestions, it sounds like the proposed curriculum would provide a sound base for GIS. 9 credit hours sounds about right for a certificate program. Knowing GIS/GPS integration and capabilities is important. Having a sound grasp of the basics such as setting scale, symbology, labeling and editing attributes is essential. I would suggest that you spend some time working on the layout view tools in ArcGIS. I think that working in the Layout view is sometimes not covered sufficiently, although many times the printed output is what's most important because that's the only thing the non-GIS people (which typically includes key decision makers) will see. Also, if classes could be offered in the evening, that would be helpful for working professionals.

Thank you for the opportunity to provide input and I wish you success in developing the GIS certificate program.

Dean

# Review of Certificate Proposals at Windward Community College

New Certificate Proposal:

|    | Signatures  | Date                    |
|----|---|-------------------------|
| 1. | Proposer<br>   | 11/9/09                 |
| 2. | Department Area (more than one departmental instructor's signature required)<br>_____<br>_____<br>_____                                 | _____<br>_____<br>_____ |
| 3. | Department<br><br>Department Chairperson             | 11/9/09<br>Date         |
| 4. | Division<br><br>Dean of Instruction                  | 11/11/09<br>Date        |
| 5. | Curriculum Committee Review<br><input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved                        |                         |
|    | Reason: _____   |                         |
|    | <br>Curriculum Committee Chairperson                 | 11/15/09<br>Date        |
|    | <br>Faculty Senate Chair<br>Richard A. Nelson - VCAA | 1/9/2010<br>11/20/10    |

J. H. [Signature]  
Chancellor

2/08/10  
Date