



new frontiers in bioinformatics and computational biology

Application Due April 1, 2010

Available online at www.nwabr.org

Bio-ITEST Professional Development Workshop Using Bioinformatics: Genetic Research

Program Description

The Northwest Association for Biomedical Research (NWABR) is excited to announce the introduction of our new bioinformatics curriculum, developed in conjunction with high school science teachers during the 2009 Curriculum Development Workshop. The curriculum is funded by a National Science Foundation grant, *Bio-ITEST: New Frontiers in Bioinformatics and Computational Biology*, and is comprised of two different units or "Strands." The Introductory Strand utilizes bioinformatics resources to teach basic concepts in molecular biology. The Advanced Strand, which is the focus of this workshop, incorporates additional informatics resources and includes an authentic inquiry-based investigation specifically for advanced students. As part of this workshop, teachers will receive:

- Background in using both the Introductory and Advanced Strand materials with students
- Training in the use of numerous bioinformatics resources, including the National Center for Biotechnology Information (NCBI) and the search engine *Entrez*
- Instruction on viewing macromolecules using *Cn3D*
- Training in software for annotating DNA sequences and performing multiple sequence alignments
- Background information on the genes that are the focus of the Advanced Strand research project
- Scientific support in the implementation of the student research project
- An opportunity to provide critical feedback on lesson drafts

Prior bioinformatics experience is not required.

Research and Evaluation

In order to determine whether our program is meeting its goals, we will conduct a research study in classrooms of participating teachers. We are interested in the effect of the professional development workshop and curricula on student achievement and interest in STEM careers. The research study is also required by our funders, the *Innovative Technology Experiences for Students and Teachers* program through the National Science Foundation. All teachers who participate in the summer workshop are requested to participate in this study. However, the study is voluntary and teachers may choose to opt out at any time.

Accepted candidates will participate in the two-week summer program and will complete a pre-survey (prior to the workshop) and a post-survey (at the end of the workshop). Teachers will also need to secure the support of their administration (principal or district supervisor) as part of their application. After the summer workshop, teachers will introduce the study to their students, provide instruction based on the program materials (approximately one to two weeks), administer brief (15 minute) pre- and post-surveys before and after Bio-ITEST lessons to their students, and provide the surveys to us for analysis.

Stipend, Credit, and Clock Hours

Teachers will receive a \$1000 stipend for their participation in the two-week professional development workshop, of which \$900 will be provided August 13th, and \$100 upon completion of the field test and

research study at the end of the 2010/2011 academic year. Teachers will also receive access to specialized software and bioinformatics resources. Clock hours will be provided free of charge, and credits may be purchased through our collaboration with Seattle University. Breakfast and lunch will be provided daily.

| 2010 Summer Schedule | Dates | Times | Location |
|----------------------|-------------|---------|---|
| Week 1 | August 2-6 | 9am-5pm | Shoreline Community College 16101 Greenwood Ave N, Shoreline, WA 98133 |
| Week 2 | August 9-13 | 9am-5pm | EdLab Group 19020 33rd Ave W, Suite 210, Lynnwood, WA 98036 |

Application Procedure

There are four components to the application – the online contact information form, the written application, the administrative support / teacher commitment form, and the Teacher Consent Form. Applications can be downloaded at <http://nwabr.org/education/itest.html>.

Completed Applications

- Online contact information form** (complete at <http://nwabr.kintera.org/itest>)
- Written application questions**
- Administrative support/Teacher commitment form, signed by Principal and Teacher**
- Signed Teacher Consent Form**

Submit your application to Jeanne Chowning, NWABR Director of Education, by one of the following mechanisms by **April 1, 2010**.

Email - jchowning@nwabr.org Fax - 206.282.2214

Mail - Attn: Bio-ITEST PROFESSIONAL DEVELOPMENT APPLICATION

Northwest Association for Biomedical Research

100 W Harrison, N Tower, Ste. 430

Seattle, WA 98119

Notices of acceptance will be mailed May 3, 2010

If you have any questions regarding your application, please contact us for assistance.

Funded by **Bio-ITEST: New Frontiers in Bioinformatics and Computational Biology**, an *Innovative Technology Experiences for Students and Teachers* grant award from the National Science Foundation.



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Application Questions

Due April 1, 2010

On a separate sheet of paper, please provide typed answers to the following. A comprehensive resume can substitute for Questions 1 and 2.

1. Name and Teaching Experience

Please begin with your current position and include school, district, dates, grades, and disciplines taught.

2. Educational Background

College/University background, including institute(s) and degree(s) earned. Describe any other professional development programs you have been involved with during the past five years.

3. Goals for the Workshop

Please describe what you would like to gain from your participation in this professional development workshop (1 page maximum). Please feel free to share additional information relevant to this application with us.

4. Teacher Research Experience

Please briefly describe any research experience you have had [e.g., summer internships, sabbaticals, etc].

5. Research Opportunities for Students

Do you currently offer any research opportunities for students (including classroom-based or independent study), or have you offered such opportunities in the past five years? If so, please briefly explain the project(s).

6. Lesson Idea and/or Materials to Share (Optional)

Please enclose lesson materials or ideas that demonstrate how you have incorporated bioethics or bioinformatics into your classroom. There is no page limit for this section and it is entirely optional. We may share the materials contributed by applicants who are selected for the program with other participants.

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Principal Statement of Support

Bio-ITEST Professional Development Workshop – August, 2010

Dear Principal,

_____ is applying to participate in two weeks of bioinformatics training at a professional development workshop sponsored by the Northwest Association for Biomedical Research (NWABR) and funded by *Innovative Technology Experiences for Students and Teachers* (ITEST), a grant from the National Science Foundation.

The workshop will be held August 2-6, and 9-13, 2010. By participating in this program, teachers are provided with:

- Curriculum resources and support materials that are aligned with the Washington State Essential Academic Learning Requirements
- Opportunities to interact with scientists, ethicists, professional colleagues and NWABR staff
- Background in and scientific support for an inquiry-based student research project
- Cutting-edge bioinformatics resources for their classrooms
- A stipend and credits/clock hours

Your signature below confirms that the teacher listed above will be teaching during the 2010-2011 school year and assures your commitment to support the teacher in conducting a 1-2 week field test of the materials they received in the workshop.

If you have any questions, please contact
Jeanne Chowning, Director of Education: Phone 206.957.3337; Email jchowning@nwabr.org

Principal Name

Principal Signature

Date

Teacher Statement of Commitment

If accepted into this program for 2010, I agree to participate in both weeks of the professional development workshop, August 2-6 and 9-13, 2010. I also agree to present lesson materials to my classes during the 2010-2011 school year, to provide written feedback to NWABR within four weeks of testing the materials in my classroom, and to allow an NWABR consultant to observe my class while teaching the Bio-ITEST lessons.

Teacher Name

Teacher Signature

Date

