Introduction to Bioinformatics (BSC4434)

COURSE SYLLABUS

INSTRUCTOR: LEAUNA STONE, MPH

Welcome Message

Welcome to Introduction to Bioinformatics, ONLINE! My name is Ms. Leauna Stone, and I will be guiding you through this course. I am looking forward to helping you make the most of this online learning experience. It is recommended that you log into the course daily -- be sure to watch for new items in the Announcements and Current Events Forums and your **PRIVATE STUDY AREA** Forums in the Discussion section of the course.

Although this course requires no prior programming experience, this is NOT an "easy A" course, primarily because all the content is technical in nature and requires you to learn new software tools (e.g., EHR software, Microsoft Excel and Access) and terminology you've perhaps never seen before. This course will require you to spend time each week reading assignments and supplemental readings, watching tutorials when made available to you, doing hands-on assignments and taking quizzes to confirm you have completed these activities.

If you have not used eLearning or eDesktop previously, don't worry. Your first stop will be to review the Start Here! content page (available when you log in to eLearning) to review tutorials. Allow at least 20 hours during your first sessions with these to come up to speed if you are not technically inclined. Your will then proceed on to Important Course Information and review the information and tutorials there.

Course Overview

This course provides an overview of various health information systems, with emphasis on case studies of systems utilized in areas such as patient-care, clinical decision-support, disease and demographic surveillance, imaging and simulation, and safety and environmental assessment. Fundamentals of electronic health records, as well as the use of Excel and Access to store and analyze health information are covered. Legal and ethical issues related to training, security, confidentiality, and the use of informed consent are also addressed.

Topics Covered

1. Background Readings; Professional Organizations to Join; Case Study in Breast Cancer
2. Historical and National Perspectives; Emerging Issues; Electronic Health Records
3. Case Studies in Patient-Care/Clinical Decision-Support Systems and Genomics; E-Prescribing; Landing a Job in Informatics
4. Health Information Systems and National Crises
5. Introduction to Organizing Data with Excel; Basics of Excel
6. Excel Functions
7. Excel Charting / Project
8. Occupational Safety and Health / Environmental Assessment; Professional Writing
9. Introduction to Organizing Data with Access; Building Tables in Access
10. Queries in Access
11. Reports in Access / Project
12. Ethical Protocols for Data Collection; Protecting Human Research Participants; Post Course Career Planning

Total instructional hours: 48 hours

Course Goals
Goals of this course include:

1. Demonstrate the ability to recall course material from historical milestones, emerging technologies, and relevant codes of ethics in health information systems.
2. Develop and demonstrate proficiency in writing, online professional social networking, electronic health records, Excel, and Access.
3. Demonstrate the ability to produce quality critical analysis.

Course Student Learning Outcomes

In general, upon completion of this course, a student will be able to:

- describe and experiment with current and emerging health information systems and features,
- propose, develop and evaluate studies of health information using Excel and Access,
- apply health care laws (e.g., HIPAA) and professional ethics (e.g., Protecting Human Research Participants, IEEE-ACM Software Engineering Code of Ethics and Professional Practice) to cases involving the use of health information systems, including legal/ethical issues in training, data security, confidentiality, and the use of informed consent, and
- identify professional development milestones for securing and advancing in a health informatics-related career path.

Fulfillment of these course goals and student learning outcomes will be assessed through examinations, a set of course assignments (with associated online discussion, quizzes, or other assessment requirements), and completion of a set of course projects in the area of health information systems.

Course Coordinator and Contact Information

Leauna Stone, MPH
Adjunct Instructor, University of West Florida

Email: lstone1@uwf.edu *

*All communication will be within eLearning for grading/tracking purposes. See Class Communication section below and Communication content page in eLearning for more information.

Required Texts/Materials

There is no required textbook for this course. Electronic resources will be provided within eLearning.

This course will draw upon a variety of reading materials to cover the topics provided above, with electronic versions of relevant articles provided via the UWF library course eReserve system. An extensive online course website will also supplement these materials, with relevant links to labs, hands-on assignments and other health information system sites.

The course is also supplemented with these codes of ethics:

- NIH Protecting Human Research Participants Certification
A set of required online tutorials developed by the UWF Library and others will also be provided. Links to these tutorials will be provided in various assignments and on the **Professional Writing Guide** provided in eLearning.

**Additional References/Bibliography**

- See additional links embedded in modules in eLearning.

**Prerequisites or Corequisites**

Please see the official **UWF Catalog**.

Working knowledge of how to use personal computers and UWF's eLearning environment, including knowledge of word processing, spreadsheet packages and Internet searching. If you have never used spreadsheets or databases before, be prepared to complete extra tutorials to come up to speed.

**Grading/Evaluation**

You will complete this course by proceeding through a set of modules, completing a set of assignments and associated course projects. You will complete quizzes online.

Fulfillment of the programmatic goals described above will be assessed as follows (see Gradebook in eLearning for final official weighting for each criterion during your semester of enrollment):

- **~25% - Quizzes** (completed individually)
  - There will be one or more quizzes associated with each module in the course. These exams will be based on module materials, supplemental readings, laboratory exercises, and the provided online resources. These exams will include multiple choice, fill-in-the-blank, short answer, and essay questions.

- **~25% - Participation/Critical Thinking/Professional Writing** (module exercises, associated assessments, and completed individually)
  - Module exercises and associated assessment in the form of discussion participation provide the hands-on component to the course. In some exercises requiring participation, you will be investigating case studies related to modern health information systems or learning how to use globally accessible systems or demos. The goal is to motivate you by showing you the excitement of emerging products, while also helping you to develop a better understanding of "good" system design which can impact the final utility of these products to solve current problems in health care. To emphasize the importance and significance of developing your ability to communicate scientific information effectively, participation in selected online forum discussions will be graded using a **Discussion Forum Grading Rubric** and require following the APA-style guidelines in the provided **Professional Writing Guide**. Grading of reading progress in various discussion forums will also form part of your participation grade.

- **~50% - Course Projects** (completed individually)
  - Information on these requirements will be made available as associated module project deadlines approach. If needed, links to tutorials developed by the UWF Library and others to help you correctly include professional referencing within your project write-ups will also be provided.

**Required Tutorials:** Tutorials will be posted in many modules for those students with limited computer backgrounds. These tutorials will cover how to use eDesktop, how to use EHRs, Excel, Access, etc. Review and be willing to RE-REVIEW these tutorials to facilitate your efforts to complete assignments in a timely manner, and CORRECTLY! See **Important Course Information** content for more information.
Discussion Participation. All discussion postings must use proper grammar and spelling to receive credit. If you are asking questions for assistance, you must clearly state the question, what errors appear, and the computer platform you are using.

Graded Assignments: You can expect to receive a grade and feedback for any graded assignment within 3-5 days of the due date.

Calculation of Final Grade: Due to the distance learning nature of this course, all requirements must be completed within the time scheduled, unless prior arrangements are made with the instructor. Your final grade will be weighted based upon the percentages indicated above. Online facilities will be provided so students can monitor their own progress. The final grade will be on a 10-point scale, roughly: A range = 90-100, B range = 80-89, etc., with plus/minus grades as appropriate.

Characteristics of Submitted Student Work and Assignments

For the purposes of programmatic assessment, the following mastery levels will be used:

<table>
<thead>
<tr>
<th>SKILL MASTERY LEVEL</th>
<th>INTEGRITY/VALUES</th>
<th>PROJECT MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exceeds Expectations (Very Good to Excellent)</td>
<td>Student has a clearly defined sense of the value of health information systems research and related ethical issues. Student can articulate and defend arguments with specificity.</td>
<td>Student consistently demonstrates clarity of thought process, ability to communicate well with other students and instructor, and consistently demonstrates abilities and understanding that surpass expected average.</td>
</tr>
<tr>
<td>Meets Expectations (Satisfactory)</td>
<td>Student demonstrates adequate awareness of the value of health information systems research and related ethical issues. Student can articulate and defend arguments, but lacks some specificity.</td>
<td>Student has adequate communication skills and demonstrates basic level of understanding of project management, however, these abilities rarely surpass expectations.</td>
</tr>
<tr>
<td>Below Expectations (Unsatisfactory)</td>
<td>Student does not demonstrate adequate awareness of the value of health information systems research and related ethical issues, or student is unable to articulate and defend arguments with any specificity.</td>
<td>Student demonstrates poor communication skills with other students and/or instructor or demonstrates a critical inability to grasp central concepts, execute technologies, or think logically to synthesize appropriate conclusions.</td>
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Class Meetings

This is a fully online course within UWF's eLearning system, taken by students local to the main UWF campus in Pensacola, Florida, across the U.S., and from overseas. In fairness to all students enrolled in this course, there are no face-to-face lectures - all course materials and assistance will be provided electronically.

On the first day of the term, the course template will appear under the current term for the College of Arts and Sciences in eLearning. Once in eLearning, your first stop is to go to the Content area (click on the Content link under the eLearning banner) and click on the Start Here! page (available when you log in to eLearning). On this page is key information on how the course is laid out in eLearning, and this page includes links for tutorials for working in an online environment. If you are new to online learning, be sure and review these tutorials.

Next proceed to read through the Important Course Information content pages in eLearning. This is where the Course Syllabus, Course Schedule and other important information can be found.
The course is broken into modules. See the Course Schedule within eLearning for deadlines to each module. Information and your assignments for each module are found within the Content area.

This course assumes a workweek with the schedule indicated on the Course Schedule link under Important Course Information. Using this schedule, each week, you would log into the course site and click on the Content link located under the eLearning banner for assignments related to that week. You should also look ahead to see scheduling dates for any tests, assignments or forum participation sessions. Online exams should be taken during the time frames indicated. Similarly, assignments should be posted or uploaded during the times indicated. More information on testing procedures and assignments will be available as these dates approach in the semester.

Class Communication

**Discussion Postings:** Unless a problem is personal in nature, it is easier and faster for instructors to respond to a posting in the Muddiest Points Forum, so a response can be composed that helps everyone. Instructors cannot reply to every discussion posting in other forums, but will read every posting and always offer constructive responses when necessary. Always check the Announcements Forum and the Current Events Forum, as well as the FAQs page for information that will be helpful to everyone.

**Outstanding Issue Quiz and Outstanding Issue Dropbox:** If a problem is related to a graded item or is personal in nature, post an attempt to the special UNGRADED, confidential quiz labeled, "Outstanding Issue Quiz" (click the Quizzes link located under the eLearning banner). Use of this quiz has increased efficiency and tracking of issues on a student/course basis and is the preferred method of grade-related and private communication (instead of email). In this manner, all your correspondence related to the course and any technical problems you experienced are retained as a permanent record in eLearning. If you have documentation to support any issue you present to your instructors via the Outstanding Issue Quiz, you upload this to the confidential Outstanding Issue Dropbox area. Responses to your Outstanding Issues quiz or dropbox submission will be found in the Outstanding Issue Quiz area, so be sure to check back in this location for any additional instructions regarding your submission. Across the hundreds of students enrolled in this course each academic year, this process has proven to be a more timely and efficient way of communicating feedback to students regarding any issues that impact course grades. In addition, this process has allowed us to work with the HelpDesk and resolve technical problems with eLearning much faster than email.

Online Test Taking Guidelines

**Save answers to quiz questions frequently to avoid loss of points.** Also please do not begin any timed, online exam/quiz in the course that may overlap with the eLearning maintenance window. The eLearning maintenance window runs 3:00-6:00 am CST (Central Standard Time) each day. If you initiate an exam that overlaps with this time and experience any technical errors, your recorded score is likely to be close to 0 for such an attempt. There are no exceptions to this policy.

If you experience any other technical problems or errors during any timed exam that does not overlap with the eLearning maintenance window, you are required to notify the HelpDesk immediately at helpdesk@uwf.edu or (850) 474-2075. Failure to contact the HelpDesk to report the problem will result in a grade of 0 automatically being assigned. If you are unable to get immediate assistance from the HelpDesk during the exam, but have documented the problem in an email or voice mail to the HelpDesk, you may attempt to restart the exam using the same browser, or attempt to re-enter the exam with another browser. If you are still unable to restart the exam and continue with saving, please note that for your final submitted score to be recorded, you MUST still prove that you documented the original technical problem with the HelpDesk via helpdesk@uwf.edu or (850) 474-2075. Failure to do so will result in an automatic grade of 0 being assigned.

Deadlines

All class activities are specified in a module's Overview and Assignments content page with exact details of the activities' deadlines and instructions. As a general rule all deadlines are by FRIDAYS at 11:59 pm CST (by eLearning's clock!) on days outlined on the Course Schedule unless otherwise noted in eLearning.
Late Policy

Do not submit assignments late. A late assignment holds up grading for the entire class and thus will earn a **0 or significant point reduction per day** (at instructor's discretion). Quizzes you forget to take are scored 0 points, and an assignment submitted one minute late is late - please do not wait until the final moments of a module to begin the upload process. Since each module builds on the next and recurring skills are required for the course projects, you are REQUIRED to still attempt all assignments, even if you are late and no points will be awarded. Not completing or attempting weekly assignments in this course negatively impacts your ability to complete your course projects. If you consistently fail to complete or attempt weekly assignments before the due dates, your inconsistent work ethic will earn an additional and significant penalty on course project grades at the end of the semester.

Special Technology Utilized by Students

- You will access the instructional content for this course through the UWF eLearning Management System (eLearning). You can access eLearning directly by using this URL: [http://elearning.uwf.edu](http://elearning.uwf.edu)
- **Students are required to have access to consistent Internet service throughout the term.** If you know you will be without consistent Internet service for a period of time, you are required to notify your instructor ahead of time and work ahead.
- **Students are required to complete this course utilizing the equivalent of a cable-speed modem.** Completing the course modules via a telephone dial-up connection will not be possible, due to the significant download times for larger audio-visual content.
- **Microsoft Office** will be used for some activities. Students have access to the current UWF-supported version of Microsoft Office via eDesktop. See the Using eDesktop content page in eLearning for more information. All assignments in the course will be based on the version of Microsoft Office currently supported through UWF's eDesktop environment.
- Students will need to use the **Firefox web browser** for course activities within eLearning. There are too many issues with Internet Explorer and eLearning at this time. **Internet Explorer 8.0 is NOT supported.** The latest Firefox can be downloaded from the following website: [http://www.mozilla.com/en-US/firefox](http://www.mozilla.com/en-US/firefox)
- **Notepad or similar text editor** is suggested for gathering your discussion posts. There are issues with the formatting if you copy/paste from Word into the body of your discussion post. It is best to wait until your text is in the discussion body before you format.
- **eDesktop** is required for course assignments. See the Using eDesktop content page in eLearning for more information. This software is provided free by UWF.
- **Elluminate** may be required for some pre-recorded tutorials. See the Using Elluminate content page in eLearning for more information. This software is provided free by UWF.
- **Required Browser Plugins:** You may need to upgrade your Browser software with the following free plugins to take full advantage of all the media elements in this Web-based course. However, you may already have these plugins installed on your computer. If so, there is no need to download and install them again.
  - **Adobe Acrobat Reader:** Required to open many web-based text documents in a format easy to read and print.
  - **PowerPoint Viewer:** Required if you do not have PowerPoint already installed on your computer. This viewer allows you to open the PowerPoint presentations in this course and then be able to print them in multiple formats.
  - **Macromedia Flash Player:** Required to open any animations that may be in your course.

Remember, if these programs are already installed on your computer, you do not need to download and install them again.

- **Technical Assistance:** If you have any technical problems, contact the ITS HelpDesk at **(850) 474-2075** or via email [helpdesk@uwf.edu](mailto:helpdesk@uwf.edu) first.

Compliance with UWF Policies on Satisfactory Progress
If you have a question regarding the UWF policies for assignment of grades of 'W' or 'I', please visit the [UWF Withdrawal Policy](#) or the [UWF Incomplete Grade Policy](#).

Expectations for Academic Conduct/Plagiarism Policy

- [Academic Misconduct Policy](#)
- [Plagiarism Policy](#)
- [Student Planner and Handbook](#)

It is the philosophy of The University of West Florida that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

In addition, any behavior that interferes with the conduct of a class is classified as disruptive behavior and will not be tolerated. Although not exhaustive, examples of disruptive behavior would include: inappropriate or threatening online postings or e-mails, etc.

Assistance via Student Disability Resource Center

The [Student Disability Resource Center](#) (SDRC) at the University of West Florida supports an inclusive learning environment for all students. If there are aspects of the instruction or design of this course that hinder your full participation, such as time limited exams, inaccessible web content, or the use of non-captioned videos and podcasts, please notify the instructor or the SDRC as soon as possible. You may contact the SDRC office by e-mail at [sdrc@uwf.edu](mailto:sdrc@uwf.edu) or by phone at (850) 474-2387. Appropriate academic accommodations will be determined based on the documented needs of the individual.

Every effort will be made to accommodate the special needs of disabled students. Please inform the instructor privately during the first week of class to indicate your particular needs. All such accommodations are officially arranged through the Office for Disabled Student Services and a letter from this office must accompany your request.

**Students must contact SDRC every semester** to obtain academic accommodations based on the documented needs of the individual and the courses taken that semester.

Quality Assurance

This course is reviewed during the semester and in an ongoing basis for quality by assessment personnel within the School of Allied Health and Life Sciences (SAHLS) to meet national standards established by the Southern Association of Colleges and Schools, the Council on Education for Public Health, and/or to address quality enhancement initiatives of SAHLS. Student feedback is also vital to this process. When reviewing our programs, our accrediting partners expect to see 100% participation in the State-of-Florida mandated SUSSAI (State University System Student Assessment of Instruction) evaluations. Thus, at the end of the semester, we need to hear from the folks that enjoyed the class and from the folks that have suggestions for improvement (ok, and from the folks that want to fill out the survey as quickly as possible with no comments to share!). BUT, we do need to hear from each and every student in this class, and we value your input.

When SUSSAI evaluations are ready for you to complete, you will see a News posting in the course. Please take a few minutes to complete the evaluation on this course and feel free to contact Connie Works at (850) 474-3080 or cworks@uwf.edu if you require any technical assistance! Please be assured that all evaluations that are completed
online are of a confidential matter. Your name, student number, and e-mail address will not be revealed to your instructor, department, or college. Only one evaluation per course per student can be submitted. Please do not delay completing the evaluation when the time approaches. Due to the significance of this information, instructors will not be able to pre-release grades in eLearning if we are not close to the 100% participation goal before finals week. Thank you!

Campus Emergency Information

In the case of severe weather or other emergency, the campus might be closed and classes canceled. Official closures and delays are announced on the UWF website, http://uwf.edu, and broadcast on WUWF-FM and WUWF-TV. Please take time to review UWF’s Emergency information at http://uwfemergency.org.

The UWF emergency system includes:

- **WUWF-FM (88.1MHz) & WUWF-TV** – the official emergency alert system broadcaster keeping students and faculty informed of dangerous situations and evacuation routes: http://uwf.edu/wuwf.


Health, Wellness, & Counseling

To help provide a balanced learning environment at UWF, health, counseling, and wellness services are offered to assist and educate students in living a healthier lifestyle, encouraging students to strive for mental and physical health.

Student Health Services include quality primary health care, education, and prevention services. For more information on services, call (850) 474-2172 or visit their website at http://uwf.edu/healthcenter/index.cfm.

Counseling and Wellness Services consists of two departments, which work independently: Counseling Services and Wellness Services. For more information, call (850) 474-2420 or visit the Counseling and Wellness website at http://uwf.edu/cws/index.cfm.

All three departments are located in the Student Health, Wellness, and Counseling Center, Bldg. 960.