

CIS 4618 (Summer - Online)  
**Expert Systems and Decision Support**  
(3 Semester Credits)

### Instructor Information

Karthikeyan Umapathy, Associate Professor

**Office location:** Mathews (15/ 3214)

**Office hours:** By appointment only

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I will respond to your emails within 24 hours, expect on days I am travelling.

### Course Information

#### Catalog Description

Expert systems construction and application. Use of computers in managerial decision making. Examination of problem solving and decision models in relation to the business environment. Practical application emphasizing evaluation of available systems and hands-on experience.

**Prerequisite:**

COP 3538 - Data Structures Using OOP

#### Course Objectives/Learning Outcomes

Students will be able to:

- Understand the design of systems using human knowledge and/ or behavior as a basis.
- Implement these systems
- Explore traditional as well as new technologies for knowledge acquisition and representation
- Understand the ethical implications of incorporating artificial intelligence, expert, and decision systems into society
- Improve verbal and written communication via term paper and team presentation

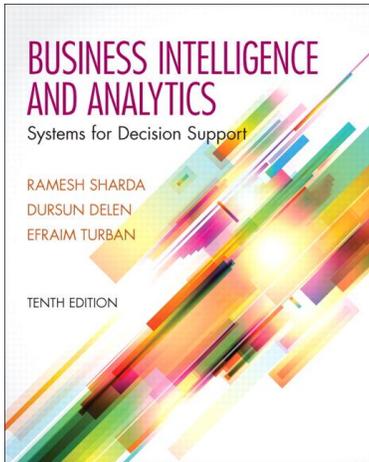
#### Method of Teaching

This is a highly interactive course that incorporates online teaching methods. This course incorporates teaching media including the text book, PowerPoint notes, software demo presentations, mini-activities, and peer discussions. As with all university courses, expect to dedicate at minimum 9 hours of study per week into this course. The student-centered nature of online learning requires students to be actively involved with and take more responsibility for their own learning. This distance learning course is asynchronous (students may log on to Canvas at

any time to complete course work). However, students must participate in course discussions and submit their work on time by the due date outlined in the course schedule.

## Textbook

### Business Intelligence and Analytics: Systems for Decision Support, 10<sup>th</sup> edition



Authors: Ramesh Sharda, Dursun Delen, and Efraim Turban

Publisher: Pearson

ISBN: 978-0133050905

Amazon Link: <http://www.amazon.com/Business-Intelligence-Analytics-Systems-Decision/dp/0133050904>

This is a required textbook for this course. As this is an online course with exams, you will need to read the textbook chapters to follow video lecture presentations, participate in discussion forums, and take exams. Assess importance of this course topic from long term career perspective before deciding whether you want to rent or buy this book.

## Instructor and Student Responsibilities

### Instructor Responsibilities

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- Be well prepared for class
- Manage class time wisely
- Provide thorough and prompt responses to questions and requests for information
- Have and enforce policies fairly and consistently
- Model civil behavior
- Model honest and ethical behavior (academic integrity)
- Assess/grade fairly and carefully
- Keep student grades and other personal information confidential
- Sufficiently available through convenient office hours and technological sources of communication
- Respond to your emails within 24 hours expect on the days I am out of office
- Provide detailed feedback on your assignments and projects
- Provide detailed assignment and project expectations and criteria used to evaluate your submissions

### Student Responsibilities

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- Treat the instructor and other students in class with respect, civility, and dignity
- Ask questions in good faith and in as clear a manner as possible
- Actively engage in class and School of Computing activities

- Complete and submit your work well before deadline
- Make a conscientious effort in all of your work
- Respect your peers all times, especially when communicating in discussion boards
- Become familiar with and follow all policies found in the UNF student handbook. [https://www.unf.edu/deanofstudents/student\\_handbook.aspx](https://www.unf.edu/deanofstudents/student_handbook.aspx)
- Everyone, especially those new to on-line courses or Canvas, should review UNF's resources and tips on taking Distance Learning (DL) courses at <http://www.unf.edu/distancelearning/current/FAQ.aspx>. If you have technical problems or a question on how to use Canvas, call the Help Desk at 620-HELP or check web-link above. Do not contact the professor. If you cannot resolve the issue, go to a campus computer helpdesk (available at Library). It is your responsibility to understand how to use Canvas correctly.
- Configure your personal computer to navigate correctly and efficiently on Canvas by the end of the first week of class or plan to use a UNF computer. Use a current, standards-compliant web browser such as Google Chrome or Mozilla Firefox.

## Netiquette & Digital Citizenship

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Read below links to learn about how to be a good digital citizen by following guidelines for communication via Email and discussion forums.

- Online Manners Matter: <http://www.edutopia.org/whats-next-2008-netiquette-guidelines>
- Posting Etiquette: <http://www.edutopia.org/netiquette-guidelines>

## Assessment

### Method of Evaluation

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Exam I (30%)

Exam II (30%)

Software Demo Report (10%)

Software Demo Presentation (10%)

Mini-activities (10%)

Discussion Forum participation (10%)

Letter grades will be based on:

94 – 100 = A

90 – 93.99 = A-

87 – 89.99 = B+

84 – 86.99 = B

80 – 83.99 = B-

77 – 79.99 = C+

70 – 76.99 = C

60 – 69.99 = D

less than 60=F

## **Late Assignment Policy**

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There will be a penalty of 10 % per day for late submission of assignments (including weekends and holidays). Anything that has a due date is considered as assignment. Example of assignment includes software demonstration, demonstration peer-comments, mini-activities, and discussion forum participation. No credit will be given for work turned in more than one week late. No partial credit will be given for assignments which are not producing reasonable output.

## **Academic Dishonesty**

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UNF will not tolerate academic dishonesty in any form as it is contrary to the process of learning. Students should demonstrate academic integrity in all of their course works. Students who violate university rules on academic dishonesty will be punished with the most severe penalty allowed by the university policy.

Please review the University policy on academic misconduct at:

[https://www.unf.edu/president/policies\\_regulations/02-AcademicAffairs/EnrollmentServices/2\\_0640P.aspx](https://www.unf.edu/president/policies_regulations/02-AcademicAffairs/EnrollmentServices/2_0640P.aspx)

The policy on academic integrity and misuse of computer equipment and computer accounts found at [http://www.unf.edu/cccec/computing/Policies\\_Guidelines.aspx](http://www.unf.edu/cccec/computing/Policies_Guidelines.aspx).

## **Violations of Academic Integrity**

Under this heading the University of North Florida Student Handbook identifies several types of violations; these include but are not limited to: cheating; fabricating and falsifying information or citations; submitting the same work for credit in more than one course; plagiarizing; providing another student with access to one's own work to submit under this person's name or signature; destroying, stealing, or making inaccessible library or other academic resource material; and helping or attempting to help another person commit an act of academic dishonesty. The University of North Florida authorizes any instructor who finds evidence of cheating, plagiarism, or other wrongful behavior that violates the University of North Florida Academic Integrity Code to take appropriate action. Possible action includes, but is not limited to, failing the student on the work in question, failing the student for the course, notifying the appropriate academic dean or Vice President for Student Affairs, and requesting additional action be taken. The consequences of a breach of academic integrity may result in an F, which is unforgivable, regardless of withdrawal status.

## **Exams**

Each student is required to take all exams at the scheduled times. All exceptions must be cleared with the instructor (at minimum one week) prior to the exam time. Exams missed for insufficient reason or without being cleared with the instructor prior to the exam time will be assigned a score of zero.

The purpose of exams is to test your knowledge of the material discussed in the video lectures and in the textbook. There will be two exams and no comprehensive final. Each exam will primarily test the most current material. Since the new material builds on the older material, some basic earlier material may be on the exam. Exam would contain true/false and multiple choice questions.

## **Missed Exams and Makeup Exam Policies**

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In fairness to the majority of students who will be doing all their work on time, there will be no special makeup exam if you miss an exam without prior notice. However, valid complications due to illness, family issues, or other valid situations may cause missed class and consequently, miss an exam. Only one missed exam will be accommodated through a makeup exam. If you have valid reasons to miss an exam, let your instructor know beforehand.

## **Practice Test**

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For each chapter, practice test assignment will be provided. Practice test scores will not be included for grade calculation, with exception if it acts as a mini-activity. Practice test are provided to test your knowledge gained from the textbook and help yourself to prepare for the exams.

## **Software Demo**

Business Intelligence (BI)/ Decision Support Systems (DSS) is a fast moving field. Ideally, everyone in the class will learn at least the rudimentary use of a set of relevant BI/DSS software through this assignment. Each group/individual is responsible for learning and conducting a training session on a BI/DSS software package. The software will be assigned to the group/individual early in the semester. More information is provided through a separate document; look for DSS software demonstration module under the Module menu in Canvas. View “Software Demo Presentation Assignment Schedule” document for software that is assigned to you and due date for the presentation.

Conducting software demonstration and having discussions based on it is fairly easy in face-to-face environment, but not so in online medium. VoiceThread, a cloud service provides some features to upload videos and conduct discussion around the video. We will be using VoiceThread online system for uploading your software demonstration videos. VoiceThread provides features to upload a video, share it with other students in the class, and ability for rest of the students to add comments to the video.

Thus, software demo presenters will upload their software demo presentation video in the VoiceThread system on the due date. Presenters can share the video to the group “CIS 4618 Summer.” After presenters upload the video, rest of the class is expected to view the software demo video, and comment on the presentation and DSS software product.

## **Commenting on Software Demo Videos**

Everyone in the class is expected to watch software demo videos prepared by other students. You are expected to watch and comment on at minimum 10 demo videos (excluding your own video). Those who fail to comment on sufficient number of videos will receive only 50% of their software demo presentation points. You can comment on usefulness of the DSS software product and demo presentation. You can also comment on what you learned from the demo presentation. If you comment via voice or video, then restrict it to one minute. If you are commenting via text, restrict to 200 words. Presenters are expected to respond those comments, if necessary.

## **Instructions to upload your software demonstration into Voice Thread**

To access VoiceThread, go to <https://voicethread.com/>

Use your [N#@ospreys.unf.edu](mailto:N#@ospreys.unf.edu) as log in and enter your password (different from your N# password). For first time login, use first two characters of your first name, and last four digits of your n-number, and first two characters of your last name as your password. For example, mine would be, ka1704ua. After you login, please change your password. If you face any issues, contact me via email ([k.umapathy@unf.edu](mailto:k.umapathy@unf.edu)).

For uploading your video, go to “Create” tab, then select “Upload” option, then select “My Computer” option, and browse and select the video to upload. Please upload MP4 formatted video file. After uploading the video, you can select the video, drag to top of the “CIS 4618 Summer 2016” group on the left, and drop it.

Link for how to share your video to the group in the Voice Thread:

<https://voicethread.com/myvoice/#thread/1171582/6325012>

General VoiceThread how to help: <https://voicethread.com/howto/>

You can use Camtasia Studio to record and create your software demonstration video. You can download 30 days free trial at below link:

<https://www.techsmith.com/camtasia.html>

Below link provide necessary guides for creating demonstration videos using Camtasia studio:

<http://www.techsmith.com/tutorial-cs8-user-guides.html>

You will need a screen capturing software to record your software demonstration video. You can choose any appropriate screen capturing software, Camtasia from Tech Smith is considered as industry leader. If you are aware of or have access to some other screen capturing, feel free to use them.

Those who are presenting as a team will need to find out best ways to coordinate and record your presentation. For example, you can meet face-to-face and record your presentation, or use some

online web conferencing systems to coordinate and record your team's presentation. If you are making a team presentation, include details of task distribution and responsibilities for both presentation and report.

## Mini-activities

There are a total of 12 mini-activities in this course, each explores a specific sub-topic. Each mini-activity is worth of one grade point. You will be provided with two attempts to complete the activity. Final attempt score will be used towards grade calculation. Maximum obtainable grade points via mini-activities (for final grade calculations) is 10.

## Discussion Forum Participation

It is important to regularly log into Canvas, read required materials, and contribute in the class discussion forums. Participation in the discussion forums is critical for maximizing your learning in the online environment. You are expected to be an active participant in the forums. Your participation in the forums will be assessed for quantity and quality of the contributions. It should be noted that participating in the self-introduction discussion forum in the first week is mandatory. If you do not participate in this forum, you will lose one grade point. Below guidelines and rubrics<sup>1</sup> will be used for evaluating your contributions in the discussion forums.

Guidelines for participation in the forums:

- You should submit your initial post(s) early in the session, and post subsequent responses to the posts of other learners at timely intervals within the duration of the session. Keep in mind the goal is to have a dynamic discussion that lasts throughout the entire session.
- Your posts and responses should be thorough and thoughtful. Just posting an "I agree" or "Good idea" will not be considered adequate. Support your statements with examples, experiences, or references. You are, however, encouraged to be brief — keep each post and response to one or two short paragraphs. Keep in mind that your fellow learners will be reading and responding to you, too.
- Make certain to address the discussion questions posted by the instructor. This does not mean you should not extend the topic, but do not stray from the topic.
- Discussions occur when there is dialogue. So, build upon the posts and responses of other learners to create discussion threads. Make sure you revisit the discussion forum and respond (if necessary) to what other learners have posted to your initial responses.
- When relevant, add to the discussion by including prior knowledge, work experiences, references, Web sites, resources, etc. (giving credit when appropriate).
- Your contributions to the discussions (posts and responses) should be complete and free of grammatical or structural errors.

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<sup>1</sup> [http://www.pbs.org/teacherline/courses/common\\_documents/disc\\_assess.htm](http://www.pbs.org/teacherline/courses/common_documents/disc_assess.htm)

**Rubrics for evaluating discussion forum participation:**

Unacceptable 0 points	Good 0.5 points	Excellent 1 point
<b><i>Criteria: Quantity and timeliness</i></b>		
<ul style="list-style-type: none"> <li>• Does not create an initial post.</li> <li>• Does not submit early in the session.</li> <li>• Does not reply to another learner.</li> <li>• Participates not at all, or Participates 1-2 times on the same day.</li> </ul>	<ul style="list-style-type: none"> <li>• Creates an initial post.</li> <li>• Replies to another learner.</li> <li>• Participates 3-4 times but postings not distributed throughout week.</li> </ul>	<ul style="list-style-type: none"> <li>• Creates an initial post.</li> <li>• Submits early in the session.</li> <li>• Replies to more than two learners.</li> <li>• Continues to participate in discussion threads until the end of the session.</li> <li>• Participates more than 4 times and distributed throughout the week.</li> </ul>
<b><i>Criteria: Demonstrates knowledge and understanding of content and applicability to professional practice</i></b>		
<ul style="list-style-type: none"> <li>• Post has little or nothing to do with the main topic or simply restates the main concept</li> <li>• Post does not demonstrate evidence of knowledge and understanding of course materials and content.</li> <li>• Response does not demonstrate evidence of knowledge and understanding of course materials and content.</li> <li>• Does not respond to questions posed by the instructor.</li> </ul>	<ul style="list-style-type: none"> <li>• Post clearly relates to the main topic, but no details and/or examples are given and has misspellings and grammatical mistakes</li> <li>• Post demonstrates some evidence of knowledge and understanding of course materials and content.</li> <li>• Response demonstrates some evidence of knowledge and understanding of course materials and content.</li> <li>• Responds to questions posted by instructor but does not engage in premise reflection.</li> </ul>	<ul style="list-style-type: none"> <li>• Post clearly relates to the main topic and adds new concepts, information. It includes several supporting details and/or examples and it is free of misspelling and grammatical errors</li> <li>• Post demonstrates clear evidence of knowledge and understanding of course materials and content.</li> <li>• Response demonstrates clear evidence of knowledge and understanding of course materials and content.</li> </ul>

Unacceptable 0 points	Good 0.5 points	Excellent 1 point
		<ul style="list-style-type: none"> <li>• Response elicits responses and reflection for others.</li> <li>• Response to instructor questions reflects critical thinking process by integrating multiple views or provides authenticated resources to take the discussion deeper.</li> </ul>

## Course Schedule

### Course Topics

It is expected that the student will read the chapter assigned prior to the class meetings and will have questions for the instructor on any topics the student is not sure of, or does not understand. The student is responsible for all topics presented in the text regardless of their coverage. In addition, the students will be responsible for all lecture material that is not included in the text.

Week	Date	Topic/Activities	Reading/Assignments (Due on end of the day)
Week 1	Day 1	Course orientation and syllabus review	<ul style="list-style-type: none"> <li>• Reading Assignment: Syllabus</li> <li>• Submit Syllabus Quiz</li> <li>• Self-introduce in the discussion forum and comment on at least two students post (not included for grades)</li> </ul>
	Day 2	An Overview of Business Intelligence, Analytics, and Decision Support	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 1</li> <li>• Post your responses to Chapter 1 discussions</li> <li>• Complete Activity 1: Decision Making in Apollo 13 Movie</li> <li>• Complete Chapter 1 Practice Test</li> </ul>
	Day 3	Foundations and Technologies for Decision Making	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 2</li> <li>• Post your responses to Chapter 2 discussions</li> <li>• Complete Activity 2: MMS Running Case</li> <li>• Complete Chapter 2 Practice Test</li> </ul>
Week 2	Day 4	Data Warehousing	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 3</li> <li>• Post your responses to Chapter 3 discussions</li> <li>• Complete Activity 3: Chapter 3 Practice Test (this test acts as a mini-activity as well)</li> <li>• Submit Software Demo Videos: MindMeister and StormBoard</li> </ul>

Week	Date	Topic/Activities	Reading/Assignments (Due on end of the day)
	Day 5	Business Reporting, Visual Analytics, and Business Performance Management	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 4</li> <li>• Post your responses to Chapter 4 discussions</li> <li>• Complete Chapter 4 Practice Test</li> <li>• Submit Software Demo Videos: Decision Knowledge Center and 1000Minds</li> </ul>
	Day 6	Data Mining	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 5</li> <li>• Post your responses to Chapter 5 Discussions</li> <li>• Complete Activity 4: ID3 Algorithm</li> <li>• Complete Chapter 5 Practice Test</li> <li>• Submit Software Demo Videos: Planners Lab and Weka 3</li> </ul>
Week 3	Day 7	Techniques for Predictive Modeling	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 6</li> <li>• Post your responses to Chapter 6 Discussions</li> <li>• Complete Activity 5: Artificial Neural Network</li> <li>• Complete Chapter 6 Practice Test</li> <li>• Submit Software Demo Videos: RapidMiner and</li> </ul>
	Day 8	Text Analytics, Text Mining, and Sentiment Analysis	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 7</li> <li>• Post your responses to Chapter 7 Discussions</li> <li>• Complete Chapter 7 Practice Test</li> <li>• Submit Software Demo Videos: Azure Machine Learning and SQL Server 2012 Report Builder</li> </ul>
	Day 9	Exam I Review	
Week 4	Day 10	Web Analytics, Web Mining, and Social Analytics	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 8</li> <li>• Post your responses to Chapter 8 Discussions</li> <li>• Complete Chapter 8 Practice Test</li> <li>• Submit Software Demo Videos: Join.Me and TeamViewer</li> </ul>
	Day 11	Model-Based Decision Making: Optimization and Multi- Criteria Systems	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 9</li> <li>• Post your responses to Chapter 9 Discussions</li> <li>• Complete Activity 6: Decision Tree</li> <li>• Complete Activity 7: Decision Table</li> <li>• Complete Chapter 9 Practice Test</li> <li>• Submit Software Demo Videos: Wrike and Arcplan Enterprise</li> </ul>
	Day 12	Exam I	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapters 1 to 8</li> </ul>
Week 5	Day 13	Modeling and Analysis: Heuristic Search Methods and Simulation	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 10</li> <li>• Post your responses to Chapter 10 discussions</li> <li>• Complete Activity 8: Search techniques</li> <li>• Complete Chapter 10 Practice Test</li> <li>• Submit Software Demo Videos: Dundas BI and FreeAgent</li> </ul>

Week	Date	Topic/Activities	Reading/Assignments (Due on end of the day)
	Day 14	Automated Decision Systems and Expert Systems	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 11</li> <li>• Post your responses to Chapter 11 Discussions</li> <li>• Complete Activity 9: Rule-based Expert Systems</li> <li>• Complete Activity 10: Forward-chaining and Backward-chaining Reasoning</li> <li>• Complete Chapter 11 Practice Test</li> <li>• Submit Software Demo Videos: NeuralTools and SolveXL</li> </ul>
	Day 15	Knowledge Management and Collaborative Systems	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 12</li> <li>• Post your responses to Chapter 12 Discussions</li> <li>• Complete Activity 11: Collaborative concepts and technologies</li> <li>• Complete Chapter 12 Practice Test</li> <li>• Submit Software Demo Videos: Presto and Aster Express</li> </ul>
Week 6	Day 16	Big Data and Analytics	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 13</li> <li>• Post your responses to Chapter 13 discussions</li> <li>• Complete Activity 12: Chapter 13 Practice Test (this test acts as a mini-activity as well)</li> <li>• Submit Software Demo Videos: Tableau and Power BI Desktop</li> </ul>
	Day 17	Business Analytics: Emerging Trends and Future Impacts	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapter 14</li> <li>• Post your responses to Chapter 14 discussions</li> <li>• Complete Chapter 14 Practice Test</li> <li>• Submit Software Demo Videos: MicroStrategy Desktop and IBM Watson IoT Platform service in IBM Bluemix</li> </ul>
	Day 18	Exam II	<ul style="list-style-type: none"> <li>• Reading Assignment: Chapters 9 to 14</li> </ul>

## Course Modifications

Instructor reserves the right to modify course including schedule, assignment specifications, assignment score distributions, grading criteria, and other relevant aspect to meet the student's needs or due to unexpected events.

## Other Remarks

### Students with Disabilities

Students with disabilities who seek reasonable accommodations in the classroom or other aspects of performing their coursework must first register with the UNF Disability Resource Center (DRC) located in Building 57, Room 1500. DRC staff members work with students to obtain required documentation of disability and to identify appropriate accommodations as required by applicable disability laws including the Americans with Disabilities Act (ADA). After receiving all

necessary documentation, the DRC staff determines whether a student qualifies for services with the DRC and if so, the accommodations the student requires will be provided. DRC staff then prepares a letter for the student to provide faculty advising them of approved accommodations. For further information, contact the DRC by phone (904) 620-2769, email ([drc@unf.edu](mailto:drc@unf.edu)), or visit the DRC website (<http://www.unf.edu/drc/>).

Military and veteran students who return from combat exposure may be utilizing the post 9/11 GI bill to continue postsecondary education goals and may need both physical and academic accommodations. Contact Ray Wikstrom, Director of Military and Veterans' Resource Center by phone (904) 620-2655, email ([ray.wikstrom@unf.edu](mailto:ray.wikstrom@unf.edu)).

### **Satisfactory Progress Policy**

The School of Computing enforces the "one repeat" rule for all prerequisite and core courses offered by the School for its major programs. Students who do not successfully complete a prerequisite or core requirement for a School of Computing course on the first attempt (i.e., earn a grade of D, F, W, WP or WF) will be granted one chance to repeat the course. Students who do not successfully complete a prerequisite or core requirement within two attempts will not be permitted to register for courses offered by the School in future semesters. This stipulation applies whether or not the student has declared a major in a School of Computing program.

[http://www.unf.edu/ccec/computing/PoliciesGuidelines/Satisfactory\\_Progress\\_Policy.aspx](http://www.unf.edu/ccec/computing/PoliciesGuidelines/Satisfactory_Progress_Policy.aspx)

### **Continuity of Instruction Plan**

In the event of disruption of normal classroom activities due to an emergency such as hurricane, pandemic or other unforeseen event or combination of events, the format of this course may be modified in order to enable completion of the course requirements. In that event, you will be provided an addendum to this syllabus that will supersede this version. It is your responsibility as a student participant to be proactive during any emergency to find instructions that I will post on Canvas which you should check daily.

