**College of General Education & Psychology**

**MATH225 DV13-01**

**Applications of Discrete Mathematics and Statistics**

**4.5 Credit Hours**

**Fall 2017**

**Syllabus Addendum**

**Faculty Name:** Dr. Vikki French

**Campus/Room:** Aurora

**Meeting day/Time:** Friday 12:00noon-4:15pm

**Office Hours:** Wednesdays: 12:00-2:00pm, Fridays 11:00am-12:00noon, Faculty office

**E-mail**: vfrench@coloradotech.edu

The best way to reach me is at my CTU email. I will usually respond within 24 hours.

This Addendum is in support of the course Syllabus and provides detailed information about your class.

1. **Faculty Biography**

In college, I got a BS, MS and PhD in Statistics (this is why I am so good at bean counting…)

I minored in Archaeology and Anthropology. I worked as a statistician doing archaeology for the US Park Service for three months – then the government cut funding. Time for a new game plan!

I ended up at the University of Missouri – Columbia in the Department of Meteorology creating

and evaluating mathematical models to estimate crop yields based on the weather. Then I did the same thing at Hershey Foods Corp (yes… chocolate… yumm…) and the same thing at the University of Arizona - Office of Arid Lands Studies (hmm… sand… not so yummy…).

So… archaeology morphed into environmental science! I am now one of the go-to people in

the profession, especially in the areas of global climate change, ocean environments and long-term forecasting.

Now when I am not teaching, I have a private consulting firm. I do famine prevention in Africa

and try to get food and water purification units into disaster areas worldwide.

1. **Instructional Approach – Methods and Procedures**
   1. **Modality Information**:

**Face-to-face Delivery:** Also known as “traditional” or “classroom” instruction. In this course, your CTU faculty member and the students are in the same place at the same time on a CTU campus (i.e., fully synchronous delivery of instruction). Your faculty member uses CTU’s Custom Virtual Classroom to provide the students with course materials (including the course Syllabus and Syllabus Addendum), course assignments, and assignment and course grades. You must meet your attendance requirements through your physical presence in the course on a CTU campus.

* 1. **Instructional Methods and Procedures**

This course is an interactive, student-centered class in which student involvement is critical to the successful completion of the course objectives. Learning is enhanced with student participation and contributions. Never fear to ask a question! If you’re wondering about something, one of your classmates probably is wondering about it too.

All homework problems are found in Intellipath. Students should begin working on the corresponding Intellipath lessons immediately after the relevant material has been covered, in order to reinforce that material. Try not to fall behind—this course moves quickly, and it may be difficult to catch up. A good initial goal is to plan to work in Intellipath for one hour three times per week. Multiple shorter sessions are more beneficial than a few marathon sessions right before due dates!

1. **Course Description**

This course studies problems that involve finite or discrete data sets. Logic and set notation form a foundation for creating structure in data storage and information retrieval. Tools used include truth tables, methods of proof, Venn diagrams, Big-Oh functions, graphs, trees, paths, and matrices. In addition, the course covers statistical measures, basic probability concepts, and normal distributions.

### Course Objectives

1. Apply formal and visual representations of relations, graphs, and functions, properties of relations, and paths through graphs to solve problems.
2. Apply set operations, power sets, Cartesian product, partitions, and Venn diagrams to analyze sets and relations.
3. Apply truth tables, methods of proofs, Boolean algebra transformation rules, and quantified first order logic expressions to solve problems.
4. Describe the computational complexity of algorithms using the Big-Oh terminology.
5. Develop skills in interpreting and applying mathematical notation in the context of computer science concepts to express formal descriptions, to extract logical meaning, and to reason with symbolic notation.
6. Generate randomized simulations and compute their descriptive parameters to analyze discrete and continuous data distributions.
7. Perform basic statistical operations on raw data to compute measures of central tendency, dispersion, and position.
8. Solve basic probability problems using concepts of addition, multiplication and complement of event probabilities.

1. **Measuring Learner Achievement**

**Activity \_\_Points – Percent**

1. Intellipath (5 @ 200 pts each) 1000 -- 100.0 %

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**TOTAL 1000 – 100.0 %**

1. **General Course Expectations**
2. **Class Participation** Teamwork, respect, and your best effort are each student’s responsibility. Students are expected to arrive on time and be alert and attentive in class. Cell phones, tablets, laptops, and other distractions are not allowed. Students are encouraged to participate in discussions, ask questions, and work together on worksheets; all other conversations must be kept until class breaks. Anyone not able to follow this policy will be asked to leave class for the remainder of the day.

For some students, circumstances will arise which will preclude you from attending class. You MUST communicate with your instructor as soon as possible. You are still responsible for any assignments due that day, any new material covered in class, and for complying with any announcements made concerning changes in the syllabus, due dates, etc.

1. **Intellipath Units** are intended to reinforce learning and deepen understanding of the material covered in the classroom lectures. Each student’s experience with Intellipath will be slightly different, as the system adapts to each student’s individual learning. Students should make every effort to complete each assigned Intellipath Unit prior to the due date.
2. **Final Note:** College level work is challenging and I realize that math courses often involve struggling with new concepts. While I expect students to develop a sense of ownership to learn the math concepts and to responsibly engage with the course materials, you are not alone!  This is a shared experience with your instructor, your classmates, and even the tutors in the library. Form a study group, work regularly with a tutor, or check out Khan Academy online. There are lots of “helpers” out there. My goal is to collaborate with you so that they can successfully complete each chapter and ultimately the course.
3. **Course Schedule**

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| **Objective(s)** | **Date** | **Week** | **Topics** | **Assignment** |
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| 1,2 | 10/6/2017 | 1 | Course Intro  Sets |  |
| 3 | 10/13/2017 | 2 | Logic |  |
| 3 | 10/20/2017 | 3 | Paths | Intellipath Unit 1  Due Sat 10/21/2017 |
| 3 | 10/27/2017 | 4 | Trees | Intellipath Unit 2  Due Wed 11/1/2017 |
| 3 | 11/3/2017 | 5 | Matrices |  |
| 4,5,6 | 11/10/2017 | 6 | Algorithms | Intellipath Unit 3  Due Wed 11/15 |
| 8 | 11/17/2017 | 7 | Probability |  |
| 7 | 11/24/2017 | 8 | Thanksgiving! | Intellipath Unit 4  Due Wed 11/29/2017 |
| 7 | 12/1/2017 | 9 | Statistics and Counts |  |
| 7 | 12/8/2017 | 10 | Averages and variability | Intellipath Unit 5  Due Wed 12/13/2017 |
| 1,2,3,4,5,6,7,8,9 | 12/15/2017 | 11 | Course Wrap-up |  |