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Spring 1-2016

### ITS 214.01: Network Operating Systems - Infrastructure

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**ITS 214T**  
**Network Operating Systems:**  
**Infrastructure**  
**Spring 2016**

*Last Revised: 1/19/2016*

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<b>Instructor:</b>	<b>Zach Rossmiller – MCSE, MCSA, MS, MCP, A+, Net+, ITIL v3</b>
<b>Email:</b>	zachary.rossmiller@umontana.edu
<b>Phone:</b>	243-6556
<b>Office:</b>	GH8D
<b>Office Hours:</b>	Available by appointment
<b>Section:</b>	01 (CRN#: 33972)
<b>Credits:</b>	3
<b>Meeting Time:</b>	MWF; M, W 8:10 – 9:00 AM; F 8:10 – 10:00 AM
<b>Location:</b>	AD 17

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**Prerequisites:**

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- ITS 212 – Network OS – Server Admin
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**UM Course Description**

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Principles and implementation of enterprise networking services. Topics include Protocol Binding, DNS, DHCP, WINS, Remote Access, IP Routing, IP Security, Network Address Translation, and Certificate Services.

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**Course Structure:**

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The course combines classroom-based activities with independent, self-directed, lab experiences. The lab component of the course is intended to provide students the opportunity to apply server technologies commonly used by professionals in the IT field.

My goal is to give you experience with server structure and management so that when you enter the workforce, you already have skills that set you apart from other candidates who only have a textbook understanding of servers. I emphasize real-world application of the material so you have a practical appreciation of the information.

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**Course Overview:**

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ITS 214 examines server applications commonly used in administering and managing Windows Server 2012R2. This course validates the skills and knowledge necessary to administer a Windows Server 2012 Infrastructure in an enterprise environment. This class stems from the Microsoft 70-411 “Administering Windows Server 2012” certification. The following topics will be explored: Windows Deployment Services, Windows Server Update Services, Network Policy Server, Network Access Protocol, Group Policy Objects, Domain Name Sever, Virtual Private Networking, and Active Directory.

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### Course Objectives:

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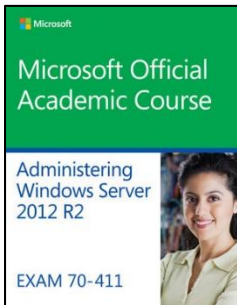
Upon completion of this course, students will be able to:

- Deploy and manage server images utilizing the Windows Deployment Services (WDS) role.
- Implement patch management using Windows Server Update Services (WSUS).
- Implementing a Group Policy Infrastructure
- Managing User and Service Accounts
- Maintaining Active Directory Domain Services
- Configuring and Troubleshooting DNS
- Configuring and Troubleshooting Remote Access
- Installing, Configuring, and Troubleshooting the Network Policy Server Role
- Optimizing File Services
- Increasing File System Security
- Configure Distributed File System (DFS)

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### Required Materials:

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*Wiley E-Test: Administering Windows Server 2012 R2*  
*ISBN : 978-1-118-88282-5*

<http://www.wiley.com/WileyCDA/WileyTitle/productCd-EHEP003138.html>

Additionally, if you do not want to purchase the e-text version, you may purchase the book version from the Bookstore for \$210.95 or online.

*Paperback: 70-411 Administering Windows Server 2012 R2*  
*ISBN : 978-1-118-88283-2*

Optional: Any kind of Linux book to help. We will be covering an entire Unit on Linux Administration.

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### Course Schedule:

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I will have a PDF version of the class schedule posted on Moodle. I will let you know if the schedule changes, but when in doubt, refer to Moodle for the latest class schedule.

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### Attendance:

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In order to succeed in this class, you will need to attend class. Attendance will be mandatory and attendance will be taken at the beginning of each class. I understand there might be personal issues that might prevent you from attending class. Here are my rules on attendance:

- Each student will be allowed three (3) excused absences. If you miss more than three times, your final course grade will be lowered by a full grade.
- If you are going to be gone, please email me so I am aware of the situation.
- If you are gone, please do not email me and ask what you missed – it is your responsibility to refer to the class schedule or ask one of your classmates.
- If you need to leave class early, please let me know ahead of time. Failure to do so may result in the loss of attendance for that day.
- Students more than 10 minutes late for labs will not be given credit for attendance.

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**Quizzes:**

There will be twelve (12) quizzes throughout the semester. The quizzes will be worth ten points each, and will be relevant to what we are learning during that particular day or week. Quizzes will be made available as soon as that material has been covered and will be due by the next scheduled class meeting unless I state differently on Moodle or in class. Quizzes will be a 25-minute quiz that will be taken outside of class on Moodle and may take the form of a multiple choice, true/false, and matching definitions. Make up quizzes will not be given.

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**Lab Assignments:**

Fridays will be the designated lab day. We will do the labs in class and the labs will be due the following week at 8:00 AM (before the next lab) unless stated otherwise. With each lab, you will need to fill out the lab worksheet and answer the lab questions. You will have a blank template and you will be required to fill it out. **All lab assignments are to be submitted via Moodle.**

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**Homework Assignments:**

As we cover each chapter in the textbook I will assign review questions over the material. These will be assigned as we work through each chapter. I expect them to be typed with proper formatting. Normally, all homework assignments will be due the day of the exam. **All homework assignments are to be submitted via Moodle.**

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**Late Work/Due Dates:**

All exams are to be taken on the assigned date and time unless prior arrangements are made. **If you have an emergency, you need to contact me IMMEDIATELY; otherwise, you will receive a ZERO.** Students will have **48 hours** before the exam to contact me, otherwise they will receive a zero.

Assignments are due on the assigned date and time. If a due date is changed, it will be announced in class. **Late work is not accepted.**

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**Submission Requirements:**

For assignments that you upload to the Moodle shell, please use a word processor and submit in PDF or .DOCX format.

**For Homework Assignments:**

LastNameFirstLetter - ITS214 – H-x (Where x is the assignment, such as Homework lesson 1)

*Example: rossmillerz - ITS 214 – H-1*

**For Lab Assignments:**

LastNameFirstLetter - ITS214 – L-x (Where x is the assignment, such as Lab lesson 1)

*Example: rossmillerz - ITS 214 – L-1*

Students frequently contact me, explaining that they uploaded the wrong assignment or need to go back and correct something. If this happens, you can go into the Moodle shell and delete your submission, then upload the corrected version. This is available to you any time before the assignment deadline.

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**Exams:**

There will be three (3) exams throughout the semester (not including the Final Exam). The exams will cover material from the labs, lectures, readings, and textbooks. Each exam will have thirty-five questions, worth three points each (105 total). Study guides will be made available for the students and we will have a designated day for review before the exam.

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**Final Exam:**

The final exam is comprehensive and will be given in two parts – a written section and multiple choice. A comprehensive study guide will be made available when we finish the last exam for the class.

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**Grading Course Activities:**

Moodle will be used to post grades.

Activity	Points	Weight
Course Exams		
Exam 1	105	
Skills Exam	105	
Exam 3	105	
Final Exam	240	
<b>Exam Subtotal</b>	<b>555</b>	<b>30%</b>
Homework Assignments	510	<b>25%</b>
Lab Assignments	540	<b>20%</b>
Quizzes	120	<b>15%</b>
Business Case Scenarios	88	<b>10%</b>
<b>Total</b>	<b>1,725*</b>	<b>100%</b>

Grading Scale:	Letter Grade:
100 – 93.00%	A
92.99% - 90.00%	A-
89.99% - 87.00%	B+
86.99% - 83.00%	B
82.99% - 80.00%	B-
79.99% - 77.00%	C+
76.99% - 73.00%	C
72.99% - 70.00%	C-
69.99% - 67.00%	D+
66.99% - 60.00%	D
59.00% - 0.00%	F

\*This will be based on time remaining in the semester. Announcements will be made in class. Always check Moodle for the latest version!

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## Topics Covered

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- **Unit 1**
  - Lesson 1 - Deploying and Managing Server Images
  - Lesson 2 - Implementing Patch Management
  - Lesson 3 - Monitoring Servers
  - Lesson 4 - Configuring Distributed File System (DFS)
  - Lesson 5 - Configuring File Server Resource Manager (FSRM)
  - Lesson 6 - Configuring File Services and Disk Encryption
  - Lesson 7 - Configure Advanced Audit Policies
  
- **Unit 2**
  - Lesson 8 - Configuring DNS Zones
  - Lesson 9 - Configuring DNS Records
  - Lesson 10 - Configuring VPN and Routing
  - Lesson - VPN Alternatives
  - Lesson - Creating a Windows Environment - Domain Controllers
  - Lesson - Creating a Windows Environment - DNS
  - Lesson - Creating a Windows Environment - DHCP
  - Lesson - Creating a Windows Environment - Group Policy
  
- **Unit 3 – Linux Server Administration\***
  - Linux Lesson #1 – Introduction to Linux
  - Linux Lesson #2 – Linux Server Distributions
  - Linux Lesson #3 – The FOG Project
  - Linux Lesson #4 – The Open-Source NAS Project
  - Linux Lesson #5 – Linux Web Servers
  - Linux Lesson #6 – OpenLDAP Installation
  - Linux Lesson #7 – SAMBA versus NFS
  - Linux Lesson #8 – Remote Administration Tools

\*This will be based on time remaining in the semester. Announcements will be made in class. Always check Moodle for the latest version!

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## Resources

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Here is a list of resources that I have used not only as study material, but also as a server administrator:

- [Microsoft TechNet](#)
- [Microsoft's Born-To-Learn: Server Certification Study Group](#)
- [CBT Nugget: Microsoft Windows Server 2012 70-411 with R2 Updates](#)
- [Training Guide Administering Windows Server 2012 R2 \(Microsoft Press Training Guide\)](#)
- [Companion Content for Microsoft Official Courseware \(MOC\)](#)

*Note: Resources will be added as the semester progresses.*

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**Email & Moodle:**

- The university policy regarding student e-mail requires faculty members to only correspond with students regarding academic issues if both parties use official UM e-mail addresses. So please do not use GMAIL, Yahoo, Hotmail, etc... to contact me.
- I have email on my phone, work computer, personal computer, and tablet. I check my email constantly. If you email me during the day, expect a response within a few hours (most of the time). I will respond to emails over the weekend, but expect a delayed response.
- Treat all emails as a form of professional communication in the class. Your messages should be well written and grammatically correct. Furthermore, your messages should begin with a proper salutation and closing. **If your email does not meet these standards of professional communication, you will get a response asking you to rewrite it.**
- It is your responsibility to check your email account and Moodle regularly. All email correspondence will be sent to your "@UMConnect.umn.edu" or "umt.edu" accounts. You are responsible for all material provided to you through these venues so you should check them both regularly. It is a good idea to keep your Sent Items for all email communications.

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**Academic Conduct:**

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at [http://www.umn.edu/vpsa/policies/student\\_conduct.php](http://www.umn.edu/vpsa/policies/student_conduct.php).

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**Plagiarism:**

Plagiarism will not be tolerated. If I suspect plagiarism, I will notify both the student(s) and the department chair as I investigate the situation. Assignments involving plagiarism will receive a 0. Make sure as you complete your assignments that everything is in your own words. Please do not copy material from other students. For more information on plagiarism, please visit: <http://libguides.lib.umn.edu/plagiarism>

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**Disability Accommodations Policy:**

Students with documented disabilities will receive appropriate accommodations in this course when requested in a timely manner. Please be prepared to provide a letter from the DSS Coordinator and a description of the requested accommodation after class or by appointment with me. Please submit your requests early in the semester or even before the start of class. Accommodations will be available after we have discussed your request, but will not be available retroactively. I want each student to succeed, and putting accommodations in place as soon as possible helps make that happen.

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**Changes to the Syllabi:**

NOTE: Instructor reserves the right to modify syllabi and assignments as needed based on faculty, student, and/or environmental circumstances. If changes are made to the syllabus, amended copies will be dated and made available to the class through Moodle.

**Tentative Course Schedule LAST REVISED: 1/19/2016\***

Week	Date	Topic
1	1/25/16 – (Mon)	Introduction
	1/27/16 – (Wed)	Lesson 1 - Deploying and Managing Server Images
	1/29/16 – (Fri)	Lab 1
2	2/1/16 – (Mon)	Lesson 2 - Implementing Patch Management
	2/3/16 – (Wed)	Lesson 3 - Monitoring Servers
	2/5/16 – (Fri)	Lab 2 Lab 3
3	2/8/16 – (Mon)	Lesson 4 - Configuring Distributed File System (DFS)
	2/10/16 – (Wed)	Lesson 5 - Configuring File Server Resource Manager (FSRM)
	2/12/16 – (Fri)	Lab 4 Lab 5
4	2/15/16 – (Mon)	<b>NO CLASS</b> – Presidents Day
	2/17/16 – (Wed)	Lesson 6 - Configuring File Services and Disk Encryption
	2/19/16 – (Fri)	Lab 6
5	2/22/16 – (Mon)	Lesson 7 - Configure Advanced Audit Policies Lab 7
	2/24/16 – (Wed)	Review for Exam 1
	2/26/16 – (Fri)	<b>EXAM 1</b> (Lessons 1 – 7)
6	2/29/16 – (Mon)	Lesson 8 - Configuring DNS Zones
	3/2/16 – (Wed)	Lesson 9 - Configuring DNS Records
	3/4/16 – (Fri)	Lab 8 Lab 9
7	3/7/16 – (Mon)	Lesson 10 - Configuring VPN and Routing
	3/9/16 – (Wed)	Lesson – VPN Alternatives
	3/11/16 – (Fri)	Lab 10 Lab – VPN Alternatives
8	3/14/16 – (Mon)	Lab – Creating a Windows Environment
	3/16/16 – (Wed)	Lab – Creating a Windows Environment
	3/18/16 – (Fri)	Lab – Creating a Windows Environment
9	3/21/16 – (Mon)	Lab – Creating a Windows Environment
	3/23/16 – (Wed)	Lab – Creating a Windows Environment
	3/25/16 – (Fri)	Lab – Creating a Windows Environment
10	3/28/16 – (Mon)	Lab – Creating a Windows Environment
	3/30/16 – (Wed)	Lab – Creating a Windows Environment
	4/1/16 – (Fri)	<b>SKILLS EXAM</b>
11	4/4/16 – (Mon)	<b>NO CLASS</b> – Spring Break



	4/6/16 – (Wed)	<b>NO CLASS</b> – Spring Break
	4/8/16 – (Fri)	<b>NO CLASS</b> – Spring Break
12	4/11/16 – (Mon)	Lesson – Linux – Introduction to Linux
	4/13/16 – (Wed)	Lab – Introduction to Linux
	4/15/16 – (Fri)	Lesson – Linux – Server Distributions Lab – Linux – Server Distributions
13	4/18/16 – (Mon)	Lab – The FOG Project
	4/20/16 – (Wed)	Lab – The FOG Project
	4/22/16 – (Fri)	Lab – The Open-Source NAS Project
14	4/25/16 – (Mon)	Lab – The Open-Source NAS Project
	4/27/16 – (Wed)	Lab – Linux Web Servers
	4/29/16 – (Fri)	Lab – Linux Web Servers
15	5/2/16 – (Mon)	Linux Unit Wrap-Up
	5/4/16 – (Wed)	<b>Exam 3</b> (Topics Covered in the Linux Lessons)
	5/6/16 – (Fri)	Review Session
16	5/10/16 – (Tues)	10:00 – 12:00 PM – <b>FINAL EXAM</b>

**\*This schedule is tentative to change. Announcements will be made in class. Always check Moodle for the latest version!**