

Benchmarks

A green
light to
greatness.



UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#) » [Issues](#)

Benchmarks - March, 2014

Campus Computing News



WiFi Expansion Update

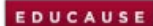
By [Claudia Lynch](#), *Benchmarks Online* Editor

Back in January, BSB (Before Spring Break), we announced that there is a [WiFi Expansion Project Underway](#). The project is a collaboration between University IT (UIT) and the UNT Systems IT Shared Services (ITSS) and everyone has been hard at work getting more WiFi in place on campus.

[Read more](#)



EDUCAUSE Opportunities



By [Claudia Lynch](#), *Benchmarks Online* Editor

There are some exciting opportunities available via EDUCAUSE this year, and many of them don't require you to travel. An ELI Spring Focus session takes place on April 1, the Annual Conference is coming up in September, and **EDUCAUSE Live!** webinars remain free and available for viewing at a time of your choosing.

[Read more](#)



The World Wide Web at 25



By [Claudia Lynch](#), *Benchmarks Online* Editor

On March 12, 1989, a British computer scientist named Tim Berners-Lee, [working at CERN](#), published his [proposal for an information management system](#) built on top of the internet. And the world was changed forever.

[Read more](#)



Today's Cartoon

Click on the link above for an information age laugh.



By the Numbers

Down the Corridor of Years

2000

Benchmarks Online

[publications](#) from 2000

note:

- The world survives Y2K. A [humorous photo](#) from the time.
- ACS introduces EagleMail, a new student e-mail service which includes IMAP as well as webmail access.
- UNT adopts a policy which designates e-mail as an official means of communication between the University and students.
- DCSMT evaluates PDA's for UNT use.
- The ILOVEYOU virus hits UNT and many other sites disabling e-mail services all over the Internet.
- ACS releases a bulk student e-mail process to communicate via e-mail to all or selected sets of UNT students.
- ACS implements online automated activation of student e-mail accounts.



Contact Us:

University Information Technology

1155 Union Circle #310709

Denton, TX 76203 USA

Voice: 940-565-4068

Fax: 940-565-4060

Visit Us:

Sage Hall, Room 338

<http://it.unt.edu/benchmarks/>



Email us:

Have questions on content or technical issues? Please contact us.

unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green
light to
greatness.

UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#)

Campus Computing News



WiFi Expansion Update

By [Claudia Lynch](#), *Benchmarks Online* Editor

Back in January, BSB (Before Spring Break), we announced that there is a [WiFi Expansion Project Underway](#). The project is a collaboration between University IT (UIT) and the UNT Systems IT Shared Services (ITSS) and everyone has been hard at work getting more WiFi in place on campus.

As the January *Campus Computing News* article stated, "Student's first!" You may have seen banners like this one in the academic buildings that are in the process of being upgraded. CR Chevli, ITSS Data Communications Group Manager, stated that as of Monday, March 17, cable and wireless Access Point (AP) installs have been completed for all group 1 buildings. Group 1 buildings are:

- [Aud](#)
- [Sage](#)
- [GAB](#)
- [Hickory](#)
- [Wooten](#)
- [Art](#)
- [Chilton](#)
- [Music](#)
- [Willis](#)

What remains to be done is rack installation, connecting to switches, testing, and performance tuning. Things are still on schedule to be operational at the end of the spring semester and, as stated [previously](#), "more academic spaces as well as some outdoor areas will be completed by the end of the fall 2014 semester."



Originally published March 2014 -- Please note that information published in *Benchmarks Online* is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best to search the UNT Website - <http://www.unt.edu> . You can also consult the UNT Helpdesk - <http://www.unt.edu/helpdesk/>. Questions and comments should be directed to benchmarks@unt.edu.





Contact Us:

University Information Technology

1155 Union Circle #310709

Denton, TX 76203 USA

Voice: 940-565-4068

Fax: 940-565-4060

Visit Us:

Sage Hall, Room 338

<http://it.unt.edu/benchmarks/>



Email us:

Have questions on content or technical issues? Please contact us.

unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green
light to
greatness.

UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#) » [issues](#) » [2014-03](#) » [EDUCAUSE Opportunities](#)

EDUCAUSE Opportunities

By [Claudia Lynch](#), *Benchmarks Online Editor*

There are some exciting opportunities available via EDUCAUSE this year, and many of them don't require you to travel. An ELI Spring Focus session takes place on April 1, the Annual Conference is coming up in September, and *EDUCAUSE Live!* webinars remain free and available for viewing at a time of your choosing.

ELI Online Spring Focus Session

The ELI Online [Faculty Engagement and Development: Effective and Innovative Practice](#) is April 1–3, 12:00–3:30 p.m. (ET). Click on the link to register and for more information.

EDUCAUSE Live! Webinars

EDUCAUSE Live! is a series of **free**, hour-long interactive webinars on critical information technology topics in higher education. You can [register](#) for upcoming webinars and you can find recordings of **all past webinars** in the [EDUCAUSE Live! archives](#).



EDUCAUSE 2014
ANNUAL CONFERENCE

September 29–October 2, 2014 | Orlando, Florida and Online

Key Upcoming Dates

- Registration Opens: **May 2014**
- Proposal Selection: **June 2014**
- Program/Agenda Online: **July 2014**

Click on the link for more information: <http://www.educause.edu/annual-conference>

Virtual Conference

- Start Date: **Tuesday, September 30**
- Start Time: **7:30 a.m.** (UTC-4)
- Conference End Date: **Thursday, October 2**
- End Time: **11:30 a.m.** (UTC-4)
- Preconference Seminars: **Monday, September 29** (for additional fees)

Click on the link for more information: <http://www.educause.edu/annual-conference/virtual-conference>

Originally published March 2014 -- Please note that information published in *Benchmarks Online* is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best to search the UNT Website - <http://www.unt.edu>. You can also consult the UNT Helpdesk - <http://www.unt.edu/helpdesk/>. Questions and comments should be directed to benchmarks@unt.edu.



Contact Us:

University Information Technology

1155 Union Circle #310709

Denton, TX 76203 USA

Voice: 940-565-4068

Fax: 940-565-4060

Visit Us:

Sage Hall, Room 338

<http://it.unt.edu/benchmarks/>



Email us:

Have questions on content or technical issues? Please contact us.

unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green
light to
greatness.

UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#) » [issues](#) » [2014-03](#) » [The World Wide Web at 25](#)

The World Wide Web at 25

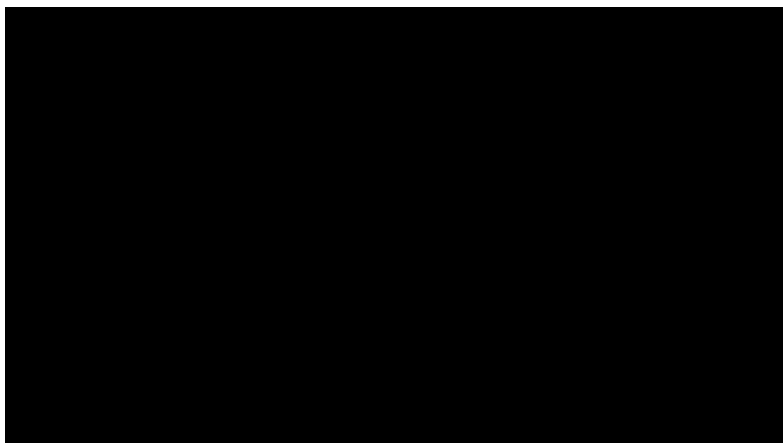
By [Claudia Lynch](#), *Benchmarks Online* Editor

On March 12, 1989, a British computer scientist named Tim Berners-Lee, [working at CERN](#), published his [proposal for an information management system](#) built on top of the internet. And the world was changed forever. An entire generation has grown up with the WWW as a fact of life. They have no memory of what life was like before the Web. Looking back at 1989 in his December 2012 *Network Connection* column, Philip Baczewski discussed what the Internet was like before the World Wide web. In 1989 Dr. Baczewski had a column in *Benchmarks* (not online) that was called "The BITNET Connection." It was "a continuing feature of Benchmarks intended to present news and information on various aspects of the BITNET wide area network." Here is the 1989 portion of the [December 2012](#) *Network Connection* column:

The column from May/June 1989 was titled Getting on the LISTS. Long before the Web, Facebook, and Twitter, e-mail mailing lists were the forums that allowed people to exchange information or coalesce around a common topic of interest, whether it was professional or social. This early column was an introduction to finding and subscribing to mailing lists run via LISTSERV, the most popular mailing list program running on BITNET-connected mainframe computers. LISTSERV survived a transition from BITNET to the Internet and remains a viable and popular program today for managing Internet mailing lists.

In those days, postal mail was the conveyor of what we now see as SPAM in e-mail. The U.S. Postal service was very willing to provide businesses a bulk mail rate that ensured that many paper-based ads and offers would be delivered to your postal mailbox. E-mail was a much more exclusive communication medium that had yet to be infiltrated by those seeking to take some of your money via legitimate or illegitimate means. The concept of SPAM was just becoming a phenomenon as unwelcome or non-topical posts to mailing lists, but generally, e-mail allowed communities of interest to develop and flourish around these special-topic mailing lists. As I said in 1989, "Electronic mailing lists make frequent and speedy communication possible in a way which would not be available through surface [postal] mail." Today's tweets and IM's cast e-mail in an antiquated light, but mailing lists still maintain a large degree of utility. LISTSERV mailing lists will probably be around as long as there is electronic mail.

The 25th anniversary of the World Wide Web has been cause for lots of celebration in cyberspace and beyond. Locally, Dr. Baczewski has marked the occasion in this month's *Network Connection* [column](#). InfoWorld [served up](#) 25 websites from the past 25 years. Scientific American did an [in-depth report](#) on the Web's 25th birthday, including an article on [The Mind Behind the Web](#). Finally, a word from Sir Tim himself (he was [knighted](#) in 2004).



[Greeting from Web inventor Tim Berners-Lee on the Web's 25th anniversary](#) from [Web25](#) on [Vimeo](#).

Originally published March 2014 -- Please note that information published in *Benchmarks Online* is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best to search the UNT Website - <http://www.unt.edu> . You can also consult the UNT Helpdesk - <http://www.unt.edu/helpdesk/>. Questions and comments should be directed to benchmarks@unt.edu.



Contact Us:

University Information Technology
1155 Union Circle #310709
Denton, TX 76203 USA
Voice: 940-565-4068
Fax: 940-565-4060

Visit Us:

Sage Hall, Room 338
<http://it.unt.edu/benchmarks/>



Email us:

Have questions on content or technical issues? Please contact us.
unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green light to greatness.



ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#)

Today's Cartoon



© Randy Glasbergen
glasbergen.com

"I tried doing my own taxes until my computer started to make a snickering sound."

From "Today's Cartoon by Randy Glasbergen", posted with special permission.
For many more cartoons, please visit www.glasbergen.com.

Originally published March 2014 -- Please note that information published in *Benchmarks Online* is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best to visit the <http://search.unt.edu> UNT Website or also consult the UNT Helpdesk/www.unt.edu/helpdesk/. Questions and comments should be directed to untmarks@unt.edu.



Contact Us:

University Information Technology
1155 Union Circle #310709
Denton, TX 76203 USA
Voice: 940-565-4068
Fax: 940-565-4060



Email us:

Have questions on content or technical issues? Please contact us.
unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Visit Us:

Sage Hall, Room 338

<http://it.unt.edu/benchmarks/>

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green
light to
greatness.



UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#) » [issues](#) » [2014-03](#) » [network-connection](#)

Network Connection

By [Dr. Philip Baczewski](#), Senior Director of Academic Computing and User Services and Deputy Chief Information Officer for University Information Technology

A Trip Down Internet Memory Lane

The March celebrations just keep on coming. The month kicked off with a rather late [Fat Tuesday](#), saw the start of the [spring break](#) season, and, of course, features the eponymous [March Madness](#), which is less of an actual mental affliction than a marketing effort. In March we also celebrate the [equinox](#) that marks the beginning of the spring season in the northern hemisphere and the start of fall south of the equator.

Tucked into all of this March revelry are a couple of geek religious holidays. [Pi Day](#) is celebrated on March 14 (3/14), a date that represents the integer and first two fractional digits of the value of the mathematical constant, Pi (3.14159... or to hear more of Pi's infinite digits, I suggest this [video](#).) Sneaking in as a newly recognized March holiday is Web Day, commemorating a March 12 in 1989 when Tim Berners-Lee first [proposed](#) the idea of an online hypertext system for disseminating scientific information. That makes 2014 the nominal 25th anniversary of the [World Wide Web](#) and there's a [web page](#) to prove it.

In the beginning ...

The Internet wasn't formed in a [split second](#) like the rest of the universe. Instead, in the early 1990's the Internet was more like a [primordial soup](#), with a swirl of different programs, some of which would go on to evolve, while others would be lost in Internet history. Before 1991, most Internet activity was divided between e-mail, [Usenet news groups](#), file transfer, interactive chat, and remote terminal sessions. Mailing lists and Usenet groups supported message-based communication on specific topics of interest, [Internet Relay Chat](#) (IRC) did the same for instant text-based communication, and various [FTP](#) sites provided anonymous or authenticated access to file-based information or applications.

Gopher, Mosaic and the World Wide Web

The Internet world changed dramatically when Gopher was unleashed by the University of Minnesota. Gopher was revolutionary for its time. It was a menu-driven system that could provide access to Internet repositories of information, whether they were on FTP sites or other Gopher servers. It also supported an integrated [search](#) capability making it the first widely-adopted protocol for conveying Internet information in an interactive interface. Gopher was quickly adopted by many university Internet sites (including UNT) and provided the facility for an online Campus-wide Information System.

The World Wide Web (WWW) project was also introduced in 1991 (mark your calendars for another 25th anniversary in 2016.) Rather than supporting static menu selections, WWW was a [hypertext](#) system that allowed "hyperlinks" to be associated with specific words on a page of text. Hypertext was a concept that had been defined for many years and had been instantiated in Apple's successful and popular [Hypercard](#) product. Hypercard did for standalone Macintosh systems what [HTML](#) did for web publishing and it was used for many applications, including educational materials and [artistic creations](#).

WWW remained in the shadow of Gopher for several years. This changed with the introduction of the [NCSA Mosaic](#) web browser, a piece of client software that could be used to access information on WWW servers. There had been web browsers before, but Mosaic was the first to be able to display pictures as well as text within the same application window. The combination of graphics with hypertext proved to be a most useful application. WWW soon overtook the Internet Gopher and between 1995 and 2000, there was a tremendous growth in the popularity and capabilities of the World Wide Web.

Gopher is now mostly relegated to Internet history, with only a bit of its former glory [lurking](#) at out of the way Internet locations. It proves that a very good idea can be quickly subsumed by and even better idea. Still, if you want to learn more about Gopher, there may be a [book](#) or two still available. I'm sure you can find one on the web.

Originally published March 2014 -- Please note that information ~~published in Online~~ is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best [http://search.unt.edu](#). Website: also consult the UNT Helpdesk/[www.unt.edu/helpdesk/](#). Questions and comments should be directed to [uit@unt.edu](#).



Contact Us:

University Information Technology

1155 Union Circle #310709
Denton, TX 76203 USA
Voice: 940-565-4068
Fax: 940-565-4060

Visit Us:

Sage Hall, Room 338
<http://it.unt.edu/benchmarks/>



Email us:

Have questions on content or technical issues? Please contact us.
unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green
light to
greatness.

UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#) » [issues](#) » [2014-03](#) » [link-of-month](#)

Link of the Month

IT Help Center/IT Service Portal

Whatever you call it, IT Help Center, IT Help Self-Service Portal, or IT Service Portal (powered by frontrange HEAT Service Management), IT help is just a click or two away. In January we announced [New IT Service Portal Comes on Line](#). To request a service and/or report a problem, visit the link below. You will need to login with your EUID and password before you can select the service you need.

<http://ithelp.unt.edu>

The screenshot shows a grid of service categories under the heading 'University IT Services'. The categories include:

- Ask the UNT Denton Helpdesk**: Request assistance from the UNT Denton Helpdesk.
- Data Management Services - Course Evaluation Processing**: Request course evaluation processing, research form design, and resea...
- Data Management Services - Exam Processing**: Request exam processing services from ACUS Data Management.
- Data Management Services - Research Data Processing**: Request scanning or hand-keying data from your survey or investigatio...
- Data Management Services - Scannable Form Design**: Request assistance with form design.
- EagleConnect Issue**: Report an issue with EagleConnect student email.
- Research and Statistical Support - Appointment Request**: Request an appointment with the Research and Statistical Support grou...
- Research and Statistical Support - Ask a Question**: Ask a question or request support.
- Research and Statistical Support - Request Software**: Request an installation copy of software from the RSS group.

The University IT Services section of the service management tool and IT Help self-service portal

Click [here](#) for information about the Knowledge Center at UNT's new IT Help Self-Service Portal.

Originally published March 2014 -- Please note that information published in *Benchmarks Online* is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best to search the UNT Website - <http://www.unt.edu>. You can also consult the UNT Helpdesk - <http://www.unt.edu/helpdesk/>. Questions and comments should be directed to benchmarks@unt.edu.



Contact Us:

University Information Technology
1155 Union Circle #310709
Denton, TX 76203 USA
Voice: 940-565-4068
Fax: 940-565-4060

Visit Us:

Sage Hall, Room 338
<http://it.unt.edu/benchmarks/>



Email us:

Have questions on content or technical issues? Please contact us.
unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green
light to
greatness.



UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#) » [issues](#) » [2014-03](#) » [helpdesk-fyi](#)

Helpdesk FYI

By [Jacob Flores](#), UIT Support Services Manager

Office 365 ProPlus is coming soon to all current students EagleConnect!

Who will be eligible for Office 365 ProPlus? How long can it be used?

This service is only available to current UNT students. Once you're no longer a student, your EagleConnect ID will no longer be able to authenticate an Office 365 ProPlus application installation for use.

What is included with Office 365 ProPlus?

- Office 2013 for Windows 7, Windows 8, and Windows 8.1
- Office 2011 for Mac OSX 10.5.8 and newer
- Office Mobile for iOS 6.1 and newer
- Office Mobile for Android 4.0 and newer

You will be able to use Office on up to 5 Windows or Mac machines and use Office Mobile on up to 5 mobile devices.

When will Office 365 ProPlus be available to students?

The official date has yet to be determined, but it will be very soon.

How does this differ from EagleConnect's OneDrive Office Web Apps that are already available?

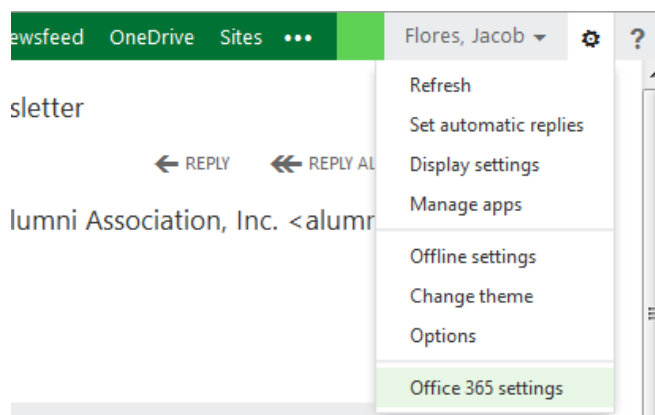
The OneDrive Office Web Apps are great solution for managing your Office documents on the go, since they may be accessed and modified anywhere you have internet and a web browser. The applications included with Office 365 ProPlus are the full standalone applications and can be used "offline," much like you're used to using on your desktops and laptops. You simply install the suite, sign in with your EagleConnect account, and you're up and running.

Check out Microsoft's [Office 365 ProPlus FAQ](#) for more information.

How do I start using Office 365 ProPlus?

Desktop applications

- 1) Log into [EagleConnect](#).
- 2) Click the gear icon near your name at the top right and select "Office 365 Settings."



- 3) Select "software" from the menu on the left.

Office 365 settings

me

JacobFlores2@my.unt.edu

software

Install and manage software.

password

Change your password.

get started

View the get started experience.

- 4) It's best to go with the "**recommended**" version of Office. For instance, Windows users may be using a 64-bit operating system, but most applications and plugins that integrate with Microsoft Office will be built for the 32-bit version of office. You may select an alternate version if you prefer, however, I'd suggest only advanced users venture into this territory.

Office

Install the latest version of Office

This will install the latest version of the following programs on your computer: Word, Excel, PowerPoint, OneNote, A



Language:

English (United States)

Version:

32-bit (recommended) advanced

Note: Installing additional languages on a computer that already has this version of Office doesn't count against yo

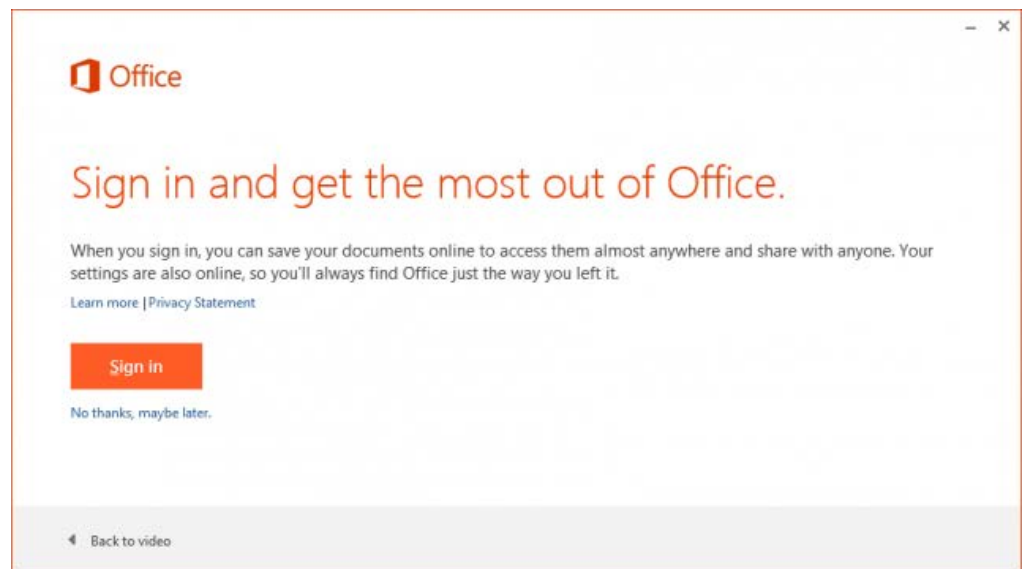
[Review system requirements](#)

install

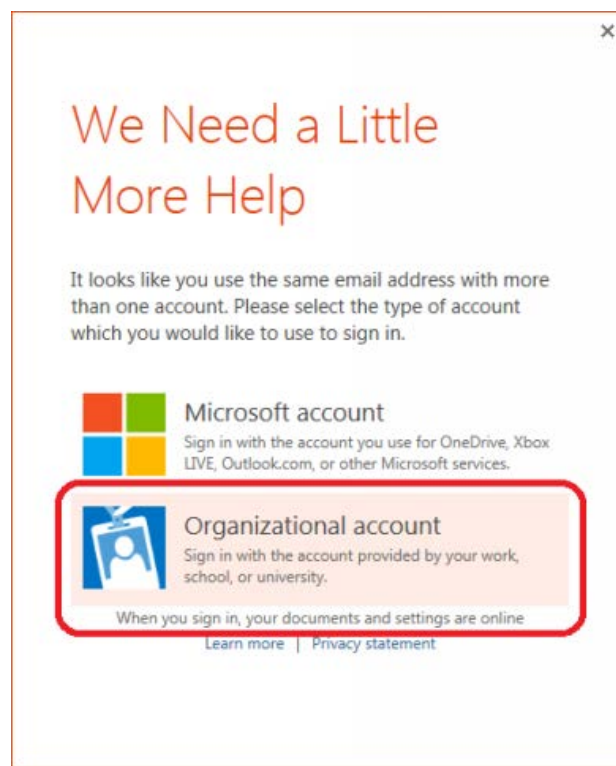
- 5) Select "install" to download the installer for your Office application.
- 6) Open this downloaded file to start the install.
- 7) Please do not go offline or restart your computer during this process; it is actively installing the software at this point. You'll likely see a status indicator like this one:

Office is installing in the background (27%) ×
 You can use your programs now, but please don't go offline or restart your computer.

- 8) While it's installing, it will offer to go ahead and sign into your Office 365 suite.



- 9) Click "Sign in" and you'll be prompted for a username. Enter your EagleConnect ID (usually in the form of FirstLast@my.unt.edu) and click "Next."
- 10) The next screen will ask to verify which type of account you're using to sign in. Since this is a service through EagleConnect from UNT, select "Organizational account."

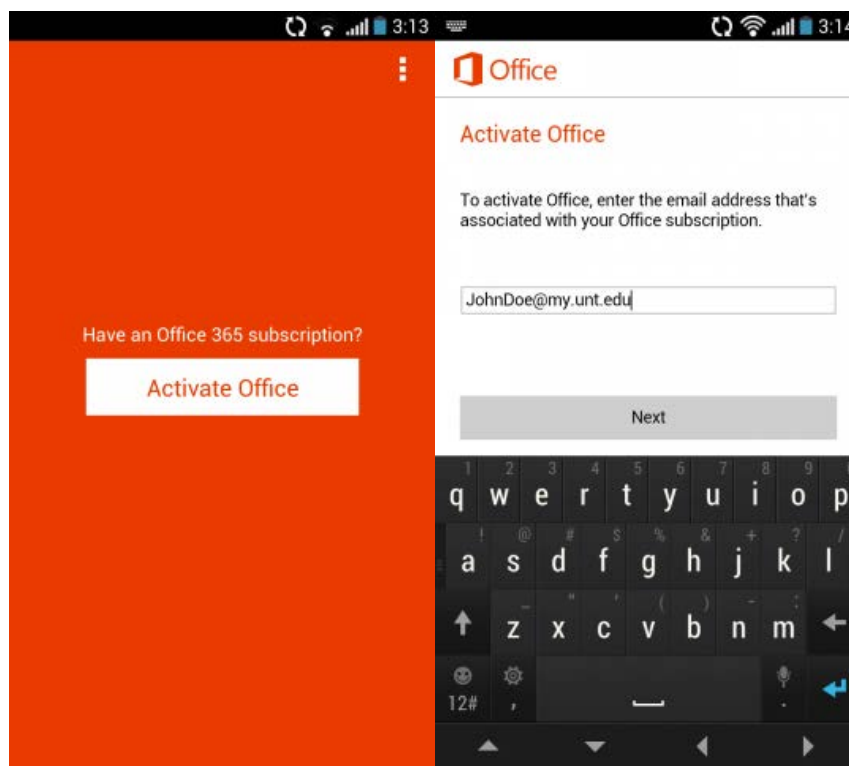


- 11) At the next page, enter your password and select "Sign in." At this point, the installer will offer to give you a walkthrough of Office 365 or skip to the end where you'll be presented with a larger progress indicating the status of your Office install. Once you see the screen below, you're all set!

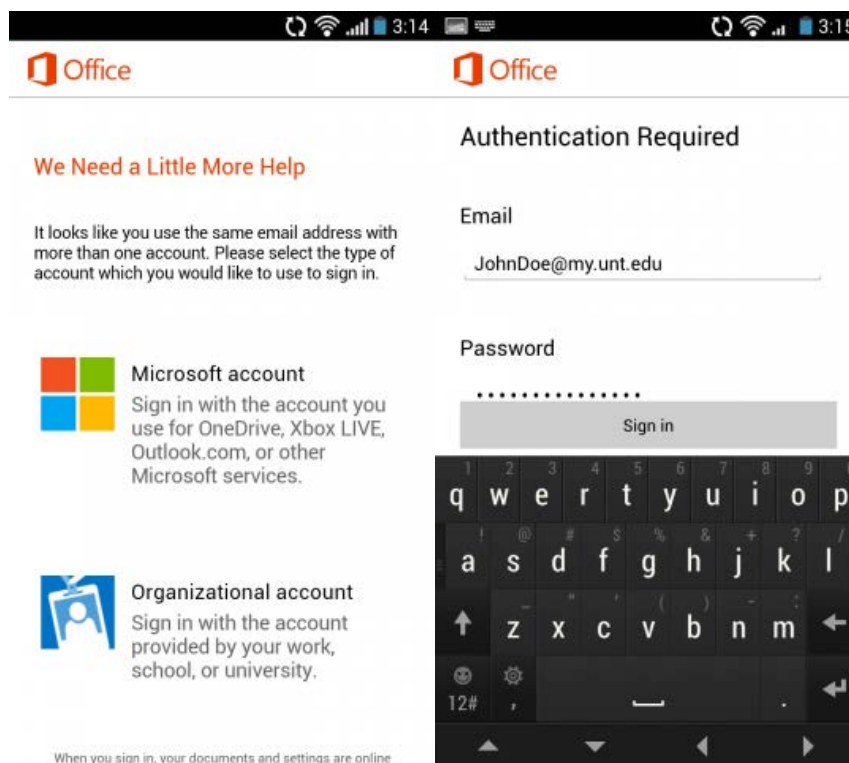


Mobile applications

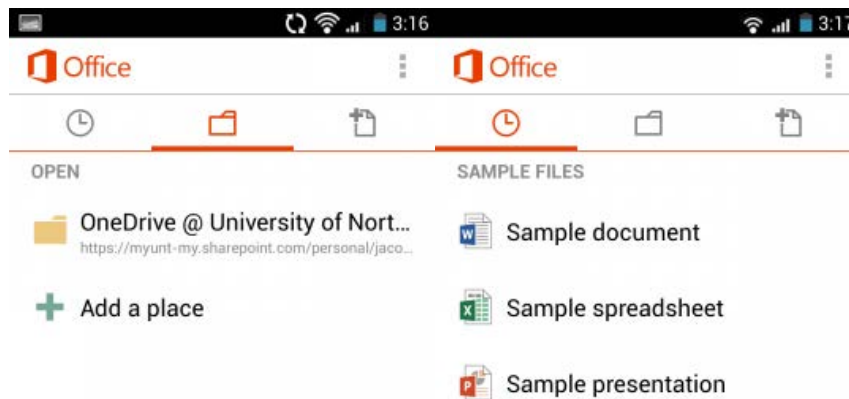
- 1) Download Microsoft's "Office Mobile" application from the app store.
- 2) Upon opening the application, you'll be prompted to read over the terms of use. You must accept these terms to use the Office Mobile applications.
- 3) Select "Activate Office" and enter your EagleConnect ID (usually FirstLast@my.unt.edu) in the username field.



- 4) The next screen will ask to verify which type of account you're using to sign in. Since this is a service through EagleConnect from UNT, select "Organizational account." At the next page, enter your password and select "Sign in."



- 5) Once you're sign in, you should be all set!



Having trouble downloading or installing Office 365 ProPlus?

- For the desktop installation, please be sure you don't lose internet access or restart your computer during the install.
- [Office 365 installation error "Something went wrong"](#).
- [General troubleshooting for installing Office 365](#).

Having trouble logging in?

- See if you can log into your [EagleConnect](#) account.
- If you can't log into EagleConnect, ensure you can log into the [Account Management System](#) with your EUID and password. While you're there, ensure you're stilling using the correct EagleConnect ID.

As always, if you have any problems, feel free to contact the [UIT Helpdesk](#).

Originally published March 2014 -- Please note that information published in *Benchmarks Online* is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best to search the UNT Website - <http://www.unt.edu>. You can also consult the UNT Helpdesk - <http://www.unt.edu/helpdesk/>. Questions and comments should be directed to benchmarks@unt.edu.



Contact Us:

University Information Technology
1155 Union Circle #310709
Denton, TX 76203 USA
Voice: 940-565-4068
Fax: 940-565-4060

Visit Us:



Email us:

Have questions on content or technical issues? Please contact us.
unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Sage Hall, Room 338
<http://it.unt.edu/benchmarks/>

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green
light to
greatness.



UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#) » [issues](#) » [2014-03](#) » [rss-matters](#)

RSS Matters

[R_stats](#)

Research and Statistical Support University of North Texas

Fulfilling the Need for Speed A brief introduction to parallel processing in the R environment.

Link to the last RSS article here: [Your one-stop multiple missing value imputation shop: R 2.15.0 with the rrp package.](#) -- Ed.

By [Dr. Jon Starkweather](#), Research and Statistical Support Consultant

This month we provide a brief overview of some methods available for applying parallel processing to the R environment. There are essentially two ways of parallel processing when using R. The first, and most frequently used, involves utilizing the multiple cores (or processors) within a single computer. Given the widespread availability of multicore computers on campuses and in research labs now, it is common to have access to such a machine. There are, and have been for a while, R packages which allow the user to utilize more than core on such a machine (only one core is used by a default installation of R). The second method for parallel processing in the R environment involves the use of distributed computing, such as multiple computers of a network or a High Performance Computer (HPC) – which has multiple nodes or modules controlled by a central operating system.

The current research culture is saturated with the phrase *Big Data*; it seems everyone is obsessed with the size of their data, or the analysis of large data. The current research climate also appears to be recognizing the complexity which seems ubiquitous in nature – harkening back to ideas long dormant; such as complexity theory (Weaver, 1948; Waldrop, 1992), general systems theory (Bertalanffy, 1968), and cybernetics (Wiener, 1965) – meaning it is no longer acceptable to perform a simple textbook style analysis (e.g. multiple regression analysis, ANOVA, etc.). Often journals are expecting complex, multidirectional and multidimensional models which account for the complex interrelationships among variables of interest (moderation, mediation, SEM, HLM, neural networks, etc.) as well as computer intensive optimization methods for estimating the parameters of these complex models (e.g. MCMC, estimation maximization / maximum likelihood optimization, genetic optimization, ant colony optimization, etc.). It is also well known that computing technology (i.e. processing speeds, memory and storage device sizes, & data transfer rates) have increased at a rate consistent with a Power Law, sometimes called Moore's Law (Moore, 1965). Therefore, it is no surprise the need for greater computing resources has led to the development of software which allows researchers to fit complex models to large data sets while optimizing parameter estimates using all available computing resources – whether those resources are included in one machine or distributed across multiple machines in a network or HPC setting.

As is the case with most things, the statistical programming language environment R offers a choice among several packages – each of which provides a method for *parallelizing* one's data analysis. Support for parallel processing in the R environment began with R 2.14.0 (Eddelbuettel, 2013) with the inclusion of a (then) new 'parallel' package (Ripley, Tierney and Urbanek, 2014) in all base installations of R (Hornik, 2014). Below we offer a simple introduction to parallel processing using multiple cores or processors on a single machine. We then provide some resources for distributed parallel processing (e.g. in an HPC or network setting).

Single Core (default) Processing

In order to demonstrate the benefits of parallel processing, we need a way of measuring the speed with which R completes a discrete task. Below, we will be using the 'system.time' function to measure the number of seconds between initiation and completion of a submitted function or set of functions. The 'system.time' function works by monitoring the computer's internal system clock and returning the difference (in seconds) between the initiation and completion of a process. Below, we use the 'system.time' function as a wrapper around any task we are attempting to measure (the speed of that embedded task) and request the function to return the "elapsed" time (in seconds) which is the 3rd element of the output from that function.

For the purposes of demonstration and simulation; let's consider an imaginary lock which requires a three integer combination. We can make the lock easy or difficult to *pick* by increasing or decreasing the number of possible choices for each integer of the combination. For example, a *brute force* search algorithm will quickly find the correct combination if there are only 5 choices (1, 2, 3, 4, 5 with replacement) for each of the three integers of the combination. However, if there are 50 choices (1, 2, 3, ..., 49, 50 with replacement) for each of the three integers, then it will require significantly more time (and more computing resources) to solve.

So, we first need to create a combination (abbreviated as "combin" below) for our imaginary lock. In order to do this, we select the number of choices (abbreviated as "choi" below) for each of the three integers of our combination (with replacement). Then, we sample 3 integers with replacement from a sequence of values from 1 to 50 (choices) to create our combination.

```
choi <- 50; choi
[1] 50
combin <- sample(seq(1:choi), 3, replace = T); combin
[1] 21 6 19
```

We can see in the example above, our combination (combin) is 21, 6, 19; each selected from a sequence of 1 to 50.

Next, we create a function (or operation) which we will use to simulate a computer resource intensive process. Our testing function is nothing more than a *brute force* search to discover the preset combination of an imaginary lock – thus the function's name 'lockpick.fun'. Brute force refers to the exhaustive, sequential, search of every possible solution.

```
lockpick.fun <- function(combination, choices){
  ch <- seq(1:choices)
  solution.matrix <- expand.grid(ch, ch, ch)
  i <- 0
  picked <- "FALSE"
  while(picked == "FALSE"){
    i <- i + 1
    draw <- solution.matrix[i,]
    if(combination[1] == draw[1] & combination[2] == draw[2] &
      combination[3] == draw[3]){
      picked <- "TRUE"; print("PICKED!!")
    }
  }
  out <- paste("Number of iterations =", i, sep = " ")
  return(out)
}
```

Notice above the function requires two arguments. First, the user supplied vector containing the three integer combination to the imaginary lock ("combination"). Second, the user must supply the integer value representing the number of choices available for each integer in the three integer combination ("choices"). We set the number of choices earlier when we created the combination (50; "choi"). As stated above, we can increase this number of choices (or decrease it) when creating the combination in order to make the brute force search operation more (or less) computer resource intensive.

Next, we show an example of the 'system.time' function when used with an application of the above specified lock picking function – given the combination above based on 50 choices for each of the 3 combination integers.

```
system.time(test.1 <- lockpick.fun(combination = combin, choices = choi))
[1] "PICKED!!"
user system elapsed
```

28.27 2.61 31.24

test.1

[1] "Number of iterations = 45271"

So, we see above our Window's 7 (64-bit) desktop computer running R 3.0.2 (64-bit) used 31.24 seconds to complete the lock pick function when each of 3 integers were chosen from a sequence of 1 to 50 possible values. Keep in mind, the more resource intensive the task, the greater the benefit from parallel processing. For instance, the widely used for-loop is method of evaluating a function (or multiple functions) iteratively. Therefore, in order to make our example more demonstrative, we will require three runs, or iterations, of our lock picking function. To establish a *baseline* (in terms of speed), we will use the ubiquitous for-loop structure. Again, the default installation of R uses a single core or processor (even on machines with multiple processors).

Below you can see we are using the same combination (21, 6, 19) and number of choices (50) as was done above, but we are using a for-loop to repeat (or iterate) the solution 3 times. We are doing this so that the reader will see a more substantial decrease in processing time (than if we only applied the lock pick function once – the example function is rather quick and therefore attempting to parallel process it offers virtually no benefit).

b.results <- as.list(0)

b.time <- system.time(for (i in 1:3){

b.results[[i]] <- lockpick.fun(combination = combin, choices = choi)

})[3]

[1] "PICKED!!"

[1] "PICKED!!"

[1] "PICKED!!"

b.results

[[1]]

[1] "Number of iterations = 124235"

[[2]]

[1] "Number of iterations = 124235"

[[3]]

[1] "Number of iterations = 124235"

b.time

elapsed

253.33

So, the above output indicates it took our single core (default R installation) 253 seconds to complete 3 iterations of our lock picking function. The "b.time" is simply an object containing the baseline amount of time required.

Multicore Processing

The vast majority of data analysis needs, regardless of data size or analysis complexity, can be satisfied using a single desktop computer with multiple cores. Substantial decreases in processing time can be observed when comparing the default single core operation to the same operation when utilizing two or more cores of the same machine. Again, the larger the job, the greater the benefit will be when using multiple cores.

Below we are going to be using the 'registerDoParallel' function of the 'doParallel' package (Weston, 2014) to register or recognize our machine's multiple cores (this machine has two cores). The 'doParallel' package has a three dependent packages ('foreach', 'iterators', & 'parallel'), one of which ('foreach') we will be using later to parallelize our 3 iterations of the lock pick function across the multiple cores.

library(doParallel)

Loading required package: foreach

foreach: simple, scalable parallel programming from Revolution Analytics

Use Revolution R for scalability, fault tolerance and more.

<http://www.revolutionanalytics.com>

Loading required package: iterators

Loading required package: parallel

Next, we register the two cores of our current machine (you could of course, register more cores if your machine has more than two).

```
registerDoParallel(cores = 2)
```

Next, we can run 3 iterations of our lock pick function using the 'foreach' function of the 'foreach' package (Weston, 2013). The 'foreach' function below looks remarkably like the for loop from above. First, the number of iterations (i) are specified (1:3), then the 'dopar' (do parallel) operator is used to specify what is supposed to be iterated.

```
t.time <- system.time(t.results <- foreach(i = 1:3) %dopar%
```

```
  lockpick.fun(combination = combin, choices = choi))[3]
```

```
t.results
```

```
[[1]]
```

```
[1] "Number of iterations = 124235"
```

```
[[2]]
```

```
[1] "Number of iterations = 124235"
```

```
[[3]]
```

```
[1] "Number of iterations = 124235"
```

```
t.time
```

```
elapsed
```

```
200.91
```

So we can see our multicore processing – using two cores – required only 201 seconds to complete the 3 iterations of our lock picking function. In order to compare this with the baseline time, we can perform a simple percentage transformation using the 'b.time' (baseline time) and 't.time' (test time) objects:

```
(b.time - t.time)/b.time
```

```
elapsed
```

```
0.2069238
```

We can report a 21% decrease in processing time when using the 'foreach' multicore processing method compared to the baseline single core processing method. The example above may seem to provide a rather paltry improvement; however, consider a task which takes 12 hours with a single core and may only take 2.4 hours to complete with two cores – and that's assuming the same 20% increase in speed. Again, recall the larger the job (i.e. the more intensive the task), the greater the benefit of using multiple cores.

Distributed Computing

It is not feasible to provide an example of parallel processing with an HPC within the space limitations for this document. However, those interested in utilizing the UNT HPC (called Talon or Talon 2.0) are encouraged to visit the HPC web site (<http://hpc.unt.edu/>) in order to set up an account (required for use of HPC and related resources). There are a variety of R packages designed to facilitate use of R in an HPC environment. In fact, there is an entire CRAN Task View devoted to high performance computing (Eddelbuettel, 2013). The HPC Task View provides descriptions of packages and their functions which are related to high performance computing (e.g. package snow: Simple Network of Workstations; "provides an abstraction layer by hiding the communications details."). Readers are strongly encouraged to review the Task View prior to contacting UNT's HPC service personnel.

Conclusions

Obviously, the main idea of this article is to make researchers aware of the multiple tools available to working with very large data, very complex models, and other computer resource intensive analysis. The R community has risen to the challenge of *big data* and continues to do so. Most data analysis needs can be satisfied using a single desktop computer with multiple cores (or processors) – which are readily available on campus. A simple example was provided to show the reader how easy it is to utilize multiple cores to speed up analysis. For more information on what R can do, please visit the Research and Statistical Support [Do-It-Yourself Introduction to R](#) course website. For

an explanation of why RSS staff recommends R, see [this](#) article in Benchmarks. Lastly, an Adobe.pdf version of this article can be found [here](#).

Until next time; *I'm sorry Dave. I'm afraid I can't do that.*

References / Resources

Bertalanffy, L. (1968). *General system theory: Foundations, development, applications*. New York: George Braziller Inc.

Edelbuettel, D. (2013). CRAN Task View: High-Performance and Parallel Computing with R. Available at: <http://cran.r-project.org/web/views/HighPerformanceComputing.html>

Hornik, K. (2014). R FAQ (section 5.1.1 R Add-On Packages): List of packages which are included with an R distribution. Available at: <http://cran.r-project.org/faqs.html>

Moore, G. E. (1965). Cramming more components onto integrated circuits. *Electronics Magazine*, p 4.

Ripley, B., Tierney, L., & Urbanek, S. (2014). Package parallel. Manual available at: <http://stat.ethz.ch/R-manual/R-devel/library/parallel/doc/parallel.pdf>

Waldrop, M. M. (1992). *Complexity: The emerging science at the edge of order and chaos*. New York: Touchstone (a division of Simon & Schuster Inc.).

Weaver, W. (1948). Science and Complexity. *American Scientist*, 36 (4), 536–44.

Weston, S., [Revolution Analytics]. (2014). Package doParallel. Documentation available at CRAN: <http://cran.r-project.org/web/packages/doParallel/index.html>

Weston, S., [Revolution Analytics]. (2013). Package foreach. Documentation available at CRAN: <http://cran.r-project.org/web/packages/foreach/index.html>

Wiener, N. (1948). *Cybernetics: Control and communication in the animal and the machine*. Cambridge, MA: MIT Press.

Originally published March 2014 -- Please note that information published in *Benchmarks Online* is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best to search the UNT Website - <http://www.unt.edu> . You can also consult the UNT Helpdesk - <http://www.unt.edu/helpdesk/>. Questions and comments should be directed to benchmarks@unt.edu.



Contact Us:

University Information Technology
1155 Union Circle #310709
Denton, TX 76203 USA
Voice: 940-565-4068
Fax: 940-565-4060

Visit Us:

Sage Hall, Room 338
<http://it.unt.edu/benchmarks/>



Email us:

Have questions on content or technical issues? Please contact us.
unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green
light to
greatness.



UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#) » [issues](#) » [2014-03](#) » [short-courses](#)

Training

By [Claudia Lynch](#), *Benchmarks Online* Editor

Do you need training on widely used computer programs including those used in statistical analysis? If so, this monthly *Benchmarks Online* column is for you.

Statistical Analysis

Instructor-led courses are offered only by special request. Please contact an [RSS member](#) or [Claudia Lynch](#) if you are interested in taking such a class or wish to have someone offer a class for your students. [SAS](#), [SPSS](#) and [Introduction to R](#) are offered online. Make sure and check out the **RSS Matters** article [Statistical Resources](#) in the July 2012 issue of *Benchmarks Online*.

Special classes can always be arranged with the RSS staff. Also, you can **always** contact the RSS staff for one-on-one [consultation](#). Please read the [FAQ](#) before requesting an appointment though.

Especially for Faculty and Staff Members

In addition to the online statistical courses, which are available to students, faculty and staff, staff and faculty members can take courses offered through the [Business Service Center](#) (they have a new comprehensive training curriculum), and the [Center for Learning Enhancement, Assessment, and Redesign](#) (CLEAR). Additionally, the [Center for Achievement and Lifelong Learning](#) (CALL) offers a variety of courses, usually for a small fee.

EIS training is available and expanding. Click [here](#) for online tutorials.

Microsoft IT Academy

All **students, faculty and staff** within the UNT System now have access to online learning via the [Microsoft IT Academy](#).

Microsoft E-Learning

Microsoft E-Learning courses are available for **faculty and staff** via our UNT System Microsoft Campus Agreement. See [the article](#) in the November 2013 issue of *Benchmarks Online* for more information.

Central Web Support

Central Web Support [provides](#) "End-User and Administrative Support for hosted general web sites, and Drupal websites for academic and administrative departments." Visit their [website](#) for "How-Tos about Everything."

CLEAR

CLEAR offers courses especially for Faculty Members. *CLEAR training includes:*

- Blackboard
- Turnitin

- Turning Point
- Assessment
- Teaching Effectiveness
- Respondus

Please check out CLEAR's training and event calendar at <http://clear.unt.edu/calendar> for the latest information regarding Blackboard, CLEAR's initiatives, and on campus instructional events.

Further information can be found [here](#).

FREE SLOAN-C ONLINE WORKSHOPS

The University of North Texas is a premium member of Sloan-C College Pass. To request FREE ENROLLMENT in an online workshop by Sloan-C, please contact [Amber Bryant](#) with the name and date of the workshop selected.

- [Sloan-C 2014 Workshops](#)

Please click on the link above to see the available 2014 workshops.

Assessment Workshops

CLEAR offers 50 minute workshops presented by Dr. Ron Carriveau that provide everything needed to develop measurable student learning outcomes and outcome-based assessments. **The first workshop begins April 3.** For more information see: <http://clear.unt.edu/if-you-cant-measure-it-then-you-cant-fix-it>

Ed2go

Ed2go are courses that are offered, for a fee, to UNT faculty, staff and students as well as the general public. According to the CALL [website](#):

CALL has partnered up to provide online learning on a variety of topics. From standardized test preparation to database programming to training for libraries and their staff, there's a variety of areas from which to choose in online learning.

The online minicourses, provided in conjunction with Ed2go, are standardized 12-lesson modules released over a six week period. (Courses are active for eight weeks to provide some flexibility). Each module features a quiz. Lessons are instructor-led and course participants and instructor communicate through a course discussion board. Lessons can be downloaded and saved. At the end of the course there is a final quiz. A passing grade opens a window that allows students to print out a course completion certificate.

Most courses are \$89, and UNT faculty, staff and students may receive a \$10 discount. Visit the online courses page at <http://www.ed2go.com/unt/> or contact Tami Russell at 940.565.3353 for more information.

For additional information, visit the **Ed2go blog** [here](#).

Information Security Awareness

The ITSS Information Security team offers Information Security Awareness training to all UNT faculty and staff.

It is a policy requirement that ALL staff take an information security course at least once a year.

See the July 2013 "[Link of the Month](#)" for the latest information about Security Awareness training.

Business Service Center Training & Development

Provides training to UNT System institutions: <http://bsc.untsystem.edu/training-development>. There is also a link to [download Office 2010 training](#) (in PowerPoint 2010 format) on the BSC website. The March 2014 BSC Solution Source Newsletter has [instructions](#) for registering for their online courses.

UNT HR Training and Development

As noted on their [website](#):

Monthly emails are sent to all employees with a list of current classes, many available by webcast. (Note: Few, if any classes are offered during the winter break, spring break holiday periods for all UNT System campuses.)

Learn more about classes

here: https://untranet.unt.edu/untsystem/UNT%20System%20HR/talent_management/SitePages/Home.aspx

If you have questions or specific needs, contact talentmanagement@untsystem.edu or call 855-878-7650 to be directed to a Talent Management staff member.

Alternate Forms of Training

Many of the General Access Labs around campus have tutorials installed on their computers.

See <http://computerlabs.unt.edu/> for a list of labs and their locations. The 24 Center in Willis Library, for example, has a [list of Tutorials and Software Support](#). The Library Instructional Unit also offers workshops and training, including "tech skills" training. Visit their websites for more information: <http://www.library.unt.edu/library-instruction>.

Info~Tech, UNT's IT Research Partner

Info~Tech is UNT's IT research partner. UNT System, UNT, UNT Health Science Center and UNT Dallas employees have access to Info~Tech research at: www.infotech.unt.edu (click on the UNT System name to login). Your standard EUID and Password gains you access to the Info~Tech system. Please take a moment to read their terms and conditions by clicking through the agreement when you set up your profile the first time you log in.

State of Texas Department of Information Resources

Another possible source of training for staff and, perhaps, faculty members is the Texas Department of Information Resources. A look at their Education and Training [website](#) reveals some interesting possibilities.

New Horizons Computer Learning Centers

New Horizons is a DIR vendor, which means that state agencies, like UNT, get special pricing for their services negotiated at the State level (click [here](#) for more information about DIR vendors). [New Horizons](#) offers courses at their own facilities in Dallas and Fort Worth, but will arrange for onsite training as well.

Originally published March 2014 -- Please note that information published online is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best to [http://search.unt.edu/UNT_Website](#) also consult the UNT Helpdesk www.unt.edu/helpdesk/. Questions and comments should be directed to direct@unt.edu.



Contact Us:

University Information Technology

1155 Union Circle #310709
Denton, TX 76203 USA
Voice: 940-565-4068
Fax: 940-565-4060

Visit Us:

Sage Hall, Room 338
<http://it.unt.edu/benchmarks/>



Email us:

Have questions on content or technical issues? Please contact us.
unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)

Benchmarks

A green
light to
greatness.



UNT

ABOUT BENCHMARK ONLINE SEARCH ARCHIVE SUBSCRIBE TO BENCHMARKS ONLINE

Columns, March 2014

Network Connection

Link of the Month

Helpdesk FYI

RSS Matters

Training

Staff Activities

[Home](#) » [issues](#) » [2014-03](#) » [staff-activities](#)

Staff Activities

Staff activities for [UIT](#) are reported in this column. ITSS staff activities are handled by [ITSS Communications](#).

Transitions

New Employees:

- **Daniel Griffith**, IT Specialist, Administrative Departments/Health Center (AIS).

Changes, Awards, Recognition, Publications, etc.

- Congratulations to the staff of the [UIT Helpdesk](#) who received the [Outstanding Department Award](#) at the President's Staff Sack Lunch on February 25.

Originally published March 2014 -- Please note that information published in *Benchmarks Online* is likely to degrade over time, especially links to various Websites. To make sure you have the most current information on a specific topic, it may be best to search the UNT Website - <http://www.unt.edu> . You can also consult the UNT Helpdesk - <http://www.unt.edu/helpdesk/>. Questions and comments should be directed to benchmarks@unt.edu.



Contact Us:

University Information Technology

1155 Union Circle #310709
Denton, TX 76203 USA
Voice: 940-565-4068
Fax: 940-565-4060

Visit Us:

Sage Hall, Room 338
<http://it.unt.edu/benchmarks/>



Email us:

Have questions on content or technical issues? Please contact us.
unt.uit@unt.edu



UNT System:

- [UNT Home](#)
- [UNT System](#)
- [UNT Dallas](#)
- [UNT Health Science Center](#)

Site last updated on April 22, 2016

[Disclaimer](#) | [AA/EOE/ADA](#) | [Privacy Statement](#) | [Web Accessibility Policy](#) | [State of Texas Online](#) | [Emergency Preparedness](#)