Introduction to Computing in GeoSciences
Logging On, EASE, Network Drives, Printing, Help, Logging Off

This session covers access to Windows PC computing services in both School of Geosciences (e.g. Drummond Basement 1.26) and central Open-Access labs (e.g. Drummond Ground Floor 2.02, Main Library, etc.) Open-Access labs are run by the University's Information Services (IS).

For further information about Open Access labs including locations see:
www.ed.ac.uk/information-services/computing/desktop-personal/open-access

Or browse from the main page at:
www.ed.ac.uk/information-services/computing

Multimedia facilities are also provided at resource centres (both Central and those at KB)
www.ed.ac.uk/information-services/help-consultancy/ucreate

Targets for this Session

You should know how to:

- **Log on** to the Windows **Managed Desktop**
- Know how to find information on digital literacy and safer computing – and access required online training
- Locate your **personal network drive** (**M:**)
- **Access Netdata** and other networked resources
- **Map** network drives, e.g. when connecting from home
- Access your **University Email** (and to read it regularly; at least twice daily)
- Access and navigate the **School Website**
- Access the **MyEd** portal and be able to access **Learn** via this
- Use **Learn** for submission of course work and for tutoring duties
- Print documents when required, and know where to do this
- Know how to use graphics appropriately for both web and print; save/print PDFs
- Know where to find IT help, e.g. for printing or filespace issues
- **Log off** Windows

1 Logging On

→ You may need to 'wake' the PC by nudging the mouse, or pressing any key which should bring up a welcome screen – probably with a background image. To bring up the login prompt you can press any key (or click) *once more*. When the input box appears, log in (on) with your **UUN** (i.e. **Universal UserName**), e.g. **snnnnnnn, v1isurna, v1isurn2, isurname, or isurnam7** etc., and **Windows password**. This password should have been set to be the same as your **EASE password** (used to access most University web-based services) *at the time you set your EASE details**.

(→) *You will most likely have already set your EASE password and details before arriving at the University. In the unlikely event you have not done this, or have any problems logging on please ask now. **NB** Should you need to set or re-set your EASE details you may be able to do this in some labs via a special dedicated PC, or via **www.ease.ed.ac.uk**.

Once logged in you may see a browser window pop-up with useful lab and computing related information, e.g. information on printing, or how and where to safely store your work. For now, a simple backdrop with minimal diagnostic information (PC ID number etc.) appears with the usual Windows Taskbar to the bottom of the screen.

2 Safe working, Information Security; Data Protection; Your Data!

Digital Skills; Computing Regulations; Mandatory Training for new students

Some important information follows. Scan through this section for now, but do return later to peruse the links given below in more detail (perhaps bookmark these in your web browser!). You are thus advised to simply note the ideas and links outlined here for later review (perhaps later today!) but for now make use of the support provided during the practical session to cover the rest of the material given in subsequent sections of this document.

Firstly note the University Computing Regulations, available here:

→ **www.ed.ac.uk/information-services/about/policies-and-regulations/computing-regulations**

You are also required as part of your studies (or employment) at Edinburgh to undertake various *mandatory* IT courses. For students these are:

Information Security Essentials Course:

→ **www.ed.ac.uk/infosec/learning-about-protection/register-information-security-essentials**

Data Protection Training

→ **www.ed.ac.uk/records-management/training/data-protection**

As well as the above Security Essentials course there is also information available on the University website worth knowing about on all aspects of Information Security:

→ **www.ed.ac.uk/infosec**

In addition you should also be aware of Digital Literacy skills, including training provided across the University (see Events on the MyEd portal – more later).

Safe Surfing

You should also be aware of the variable nature of information retrieved by using Internet Search Engines. Always take a critical view of information obtained and verify against multiple sources, or known reliable sources.

Be aware that many free online services may make their revenue by either advertising or ever more frequently by harvesting data about browsing habits, including yours! While **Google** is a fantastic resource for many, there are other search facilities and online resources available. One alternative that may be worth exploring is **Duck Duck go** (**https://duckduckgo.com** – which claims to maintain user privacy though note that we cannot 'advocate' for any particular platform!)

Now let's push on with the more practical elements for today but do be aware of all the above information – and in particular you **are** required to undertake the mandatory courses listed!

3 Finding Network Drives and *your* GeoSciences Home Directory

→ From the menus open a **File Explorer** window (either from the **Taskbar** located by default at the bottom of the screen, or from **Start ► Windows System ► File Explorer**.)

Start and **File Explorer** icons look like this, respectively:

→ Once the **File Explorer** window opens click on **This PC** to the left. You should see various available *drives*. Under **Network locations** you should see at least one drive, **M:** This should be a personal file space, usually your GeoSciences **home directory** held securely on a School fileserver e.g. **uun(\\students.geos.ed.ac.uk)**, but alternatively perhaps a central University-provided space (e.g. if you were previously an undergraduate student). In either case this is a space on a (UNIX/Linux) server mapped to appear *in* Windows and should be available to you from any machine to which you log in. (UNIX/Linux is a sophisticated operating system that, unlike Windows, is particularly well designed for multiple users and is thus used on many servers such as the majority of servers powering the web.)

This *UNIX/Linux* **home directory** is 'mapped' to the M: drive on a *Windows* desktop PC (via a technology known as **Samba**). It is shown with the relevant Windows' Universal/Uniform Naming Convention (UNC) network reference, e.g.: **\\students.geos.ed.ac.uk\<uun>** when accessed or ***<uun>* (\\students.geos.ed.ac.uk)** when displayed in a Computer window. You should look now to see this in the **Computer** window. **NB** <uun> should be replaced with your uun username (no angle brackets required – these show variable content.)

NB If you are a member of staff your geosciences home directory may appear via staff.geos.ed.ac.uk instead of students. Research staff and PGR students also have a space on the **University's Research DataStore** facility – this should be mapped to Windows' **R:** drive.

NB In Windows, various folders may appear which may look like appropriate homes for you to store your work, e.g. Users/Documents/Libraries/My Documents etc. They may actually not be appropriate, and either intended for storing user-specific network-wide software settings, or they may even be PC-specific folders entirely local to the particular PC you are using (e.g. **Downloads** in particular).

Thus to avoid confusion and possible data loss it is **ALWAYS** best to explicitly access your **GeoSciences** or similar **home directory** network drive e.g. via '**UUN (\\students.geos.ed.ac.uk**)' (**M:** or **T:** etc.) intended for the storage of all your work and data.

→ Take a look again at the **File Explorer** window. List below which network drives you have (and note what network location they point to) below so that we can check your account is correctly set-up and ready. If you have no network drives, please record the fact here!

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(→) Should your M: drive **not** point to your ***GeoSciences*** home directory, you can use a *script* shown below to either map this to M: – if for any reason your M: drive is simply not mapped at all (blank or does not appear), or failing that (if your M: is already *occupied*), as **T:**. Your **M:** drive may be occupied by non-Geosciences drives if you were previously a student here, are a new taught student whose drive mapping has not yet been changed to Geosciences. If both M: and T: are already occupied please ask!

→ The script to be run is accessed via the **U:** (**University**) drive and can be found at: **U:\SCE\GEOS\drive_mapping\Access Netdata**.

→ Running this script also adds the **netdata** teaching drive as **G:**. This read-only shared drive is used to provide data for a variety of GeoSciences courses, including several involving GIS and Remote Sensing. Due to competition for drive letters, and e.g. USB card readers often taking up several of these, this script must be run *each time* you login if you require access to data stored on the geosciences network.

→ To avoid having to find this script each time therefore you may find it useful to **right-click** on the script icon then **Add a Shortcut** to this on your **Desktop** *and/or* also **Pin** this to your Windows **Taskbar** where it will be accessible quickly regardless of which program or window is currently open.

→ **NB** After locating your ***GeoSciences*** home directory, you should create a folder called **PCInduction** there where you can store any work created today – you will use this if attending the UNIX/Linux sessions tomorrow!

NB If you experience any problems running a script such as the **Access Netdata** script above, or such a script is not available, you can easily map network drives manually. To learn how to do this see the relevant **Appendix** at the end of this document. (**NB** The **Access Netdata** script should work from all University labs so if you had any problems with this above then please ask for help now).

→ **NB** Remember to create a **PCInduction** folder in your '**homedir**', if not yet done!

3 University Email (Webmail via Browser, or Email Client/Apps)

For now email is the primary means by which staff will communicate with you. It is important that you check it regularly. Your SMS email address is based on your **Universal UserName** (**UUN**) and is of the form **UUN@sms.ed.ac.uk**.

3.1 Getting Started with University Webmail

A number of email systems exist within the University. Full details are available at the following page:

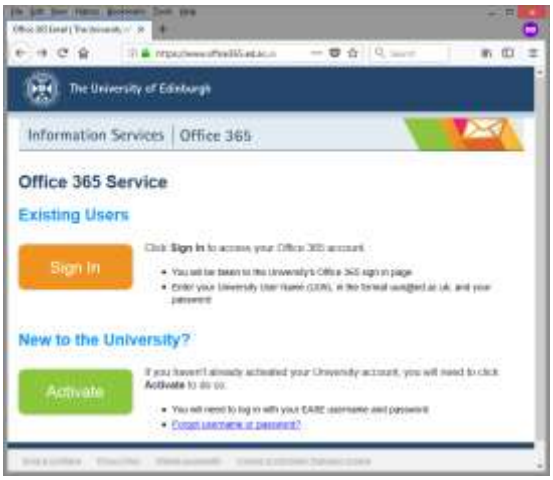
www.ed.ac.uk/information-services/computing/comms-and-collab/email

In GeoSciences, while local IT support exists and specialist systems may be possible, regular email facilities are available in the form of the centrally provided services offered by Information Services. GeoSciences users now use the centrally provided **Office365** service. You can double-check which service you use with the **Email Lookup** search dialogue available at the page listed above.

3.2 Office 365 and Office 365 Webmail

→ Open the page: **www.office365.ed.ac.uk**

→ You will be offered a choice of button. Existing students who have *activated* their **Office365** account can simply click the *orange* **LOGIN** button. Those who have *not yet activated* their account (i.e. those logging in for the first time) should click the *green* **ACTIVATE** button – see the screenshot below. You may then be prompted to set language and time zone. You can adjust settings later however.



Office365 offers a number of modern advantages over traditional systems such as being able to connect from phones, tablets and other mobile devices and also to work in the **Cloud**! Integrated features include various office applications (**Word**, **Excel**, **PowerPoint**, **Outlook**, **OneNote**, etc. and app versions of these), video calls via **Skype**, and **OneDrive** which provides you with a very handy 1 Terabyte (Tb) of storage. While handy for typed/office documents, e.g. essays, the downside is that direct connectivity with computer filesystems (e.g. DOS/Linux

command line environments often used in scientific, web server and open source contexts), or even non-Microsoft conventional desktop programs, can be mixed! **NB** Research students are also given space on the Edinburgh **Datastore** (their R: drive) which can be accessed directly across networks and thus can be used to run e.g. computer code.

→ Try sending a test message to your neighbour.

See the following links for more information:

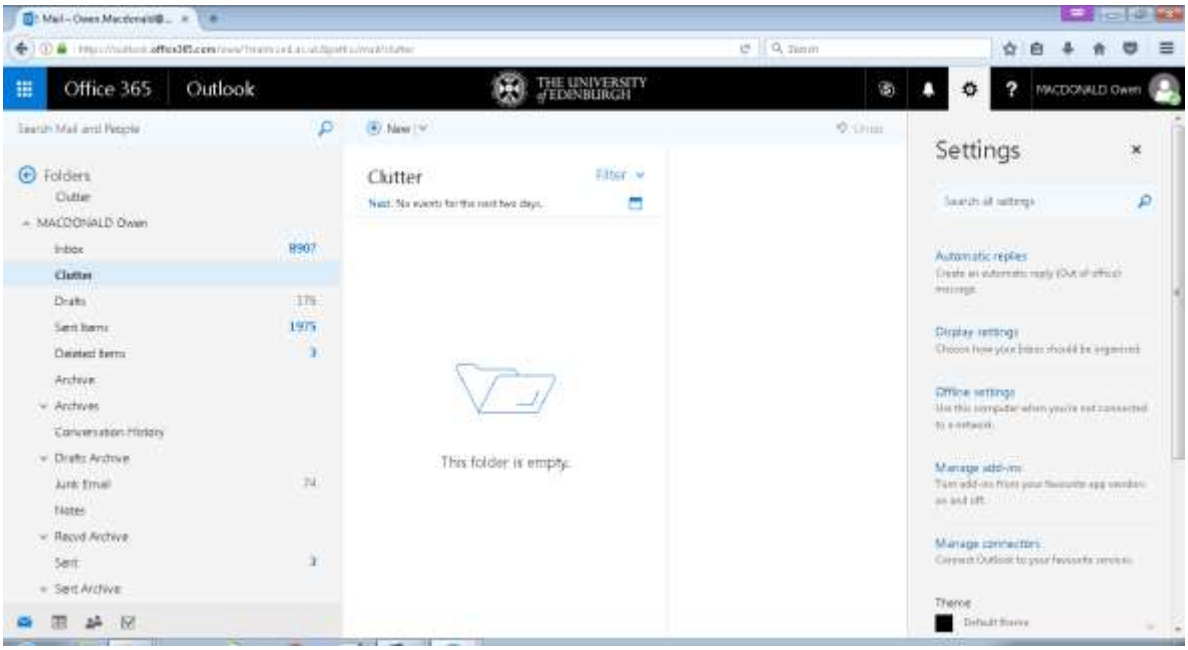
www.ed.ac.uk/information-services/computing/comms-and-collab/office365

www.ed.ac.uk/information-services/computing/comms-and-collab/office365/email-calendar

www.ed.ac.uk/information-services/help-consultancy/it-help/email-and-office365/email-faqs

The (middle) email-calendar link above also provides information on connecting to your email from both a web browser and also via dedicated client software. Client software traditionally used to be faster but doesn't always offer every feature offered by the web interface provided by the email service provider. You can however group email from multiple accounts in one convenient display. Unfortunately popular open source email client **Mozilla Thunderbird** is incompatible with the Office365 **Calendar** facility, however it is still very usable solely for email.

3.3 Office365: Key Settings



→ Office365 offers a number of settings and features worth noting here. Firstly look out for any **Junk Email** folders – you may have these if you have been migrated from another email system to Office365, and in particular look for the occasionally hyper-active **Clutter** folder provided by Office365. If you find too many legitimate email messages being mis-classified as unwanted and placed here you can control it (or turn it off altogether if you can cope with the resulting SPAM*) by **right**-clicking on it and going to **Clutter Settings**.

→ You can also access other settings this way – seemingly many are more easily reached this way rather than via the **Settings** (cog-wheel) button to the top-right. These include **Inbox and sweep rules** which allow you to send certain types of mail to a particular destination or to automate filing of messages. Arguably the most useful other feature is **Automatic Replies** which usefully can be reached most quickly from the **Settings** cog-wheel – located at the top of the list. You can use this facility to offer an automated response during vacation times or whenever you are away from University for an extended period. Usefully you can specify different replies to be sent to emails from within or outside the University as appropriate. **NB** Rules might be familiar to some as *filters* in other Email software.

*SPAM (or spam) is unsolicited junk email, often of a commercial or offensive nature, which is an inevitable feature of the Internet and very difficult to prevent. Unfortunately it can often be sent supposedly in the name of a legitimate user by faking (or 'spoofing') that person's email address. You should thus consider changing all online passwords often (email/online service providers do have occasional data breaches), try not to use the same password on multiple sites, employ further verification checks (e.g. receiving a code by text message), and also consider how openly you advertise your email address - where you have the ability to control this. That all said, SPAM is almost impossible to prevent so don't spend your life in fear, and try to maintain some perspective!

3.4 University Email Directory

→ You can find out staff and student email addresses from **https://search.ed.ac.uk**.

Staff addresses can be searched using the search form at the top of each page on the University website. Student addresses can only be searched by first logging into the MyEd portal (see below).

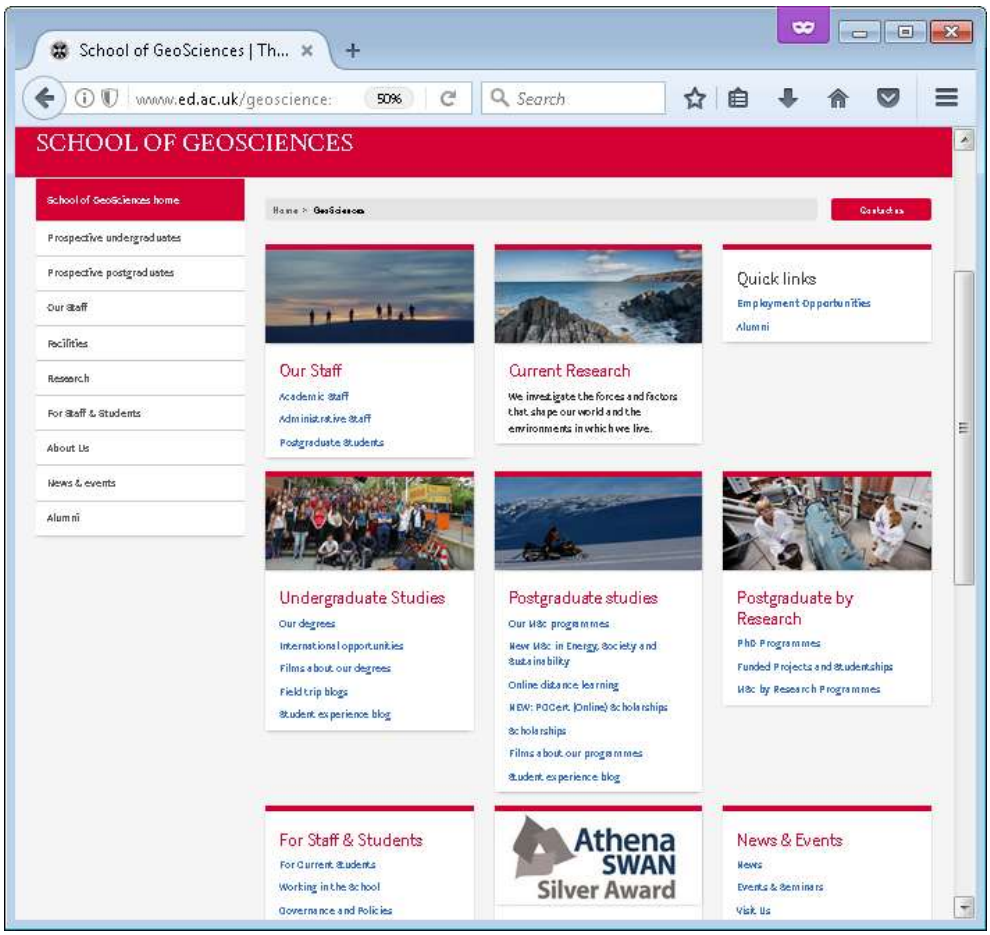
Alternatively you can search for users when composing an email from the **To** line. This will also likely find all people who have either emailed you, or whom you have emailed, or possibly even simply those whose address has been in an email you have sent or received.

NB Some users may choose not to enrol in the email directory!

4 Accessing the School Website

4.1 Introduction and Student Information; Tutoring & Demonstrating

→ 'Point' your web browser to the School website via **www.geos.ed.ac.uk**.



The first thing you will notice is that the URL will change to:

www.ed.ac.uk/geosciences/.

This is in keeping with the standard University of Edinburgh website content management system (CMS) structure, **BUT ALSO**:

→ **Memorise** the shorter URL:

www.geos.ed.acuk

Doing so will pay dividends. It forms the basis (and base URL) of the GeoSciences file-based web server, useful for various purposes including 'clean' rapid web development, e.g. see **www.geos.ed.ac.uk/~gisteac/wkzero** for copies of these practical notes.

These are provided by user **gisteac** (**NB** no **h**!), the service providing a quick and easy way of distributing files locally (or across the web) without having to inefficiently email large files. The service also allows e.g. web scripts to be run, either in teaching or for research collaboration. You can learn more at: **www.ed.ac.uk/geosciences/intranet/it/webspace**.

→ Return now to the main **GeoSciences** website, via **www.geos.ed.ac.uk** or directly at the officially published full address **www.ed.ac.uk/geosciences**.

→ Of most immediate relevance will be the information under the **For Staff and Students** section to the bottom-left. (Note the layout is prone to change with time however relevant items should continue to be obviously named!)

→ **For Staff & Students** links to the useful grouping of information for local users at **www.ed.ac.uk/geosciences/intranet**.

Some key items are listed underneath, most notably information **For Current Students** and **IT Support** however both of these and also much more information can be reached by following the main **For Staff & Students** ('intranet') link.

→ In particular, from the 'intranet' page, you should note both the sub-sections **Current Students** and **Information Technology** (both as mentioned above) with the former including information on resources, PGR/PGT support and legal/visa information, *and also*, the link next to these to **Guidance for Teachers and Supervisors**.

→ Located within *this*, via **Supporting Teaching**, is information of particular use for anyone interested in gaining experience of **Tutoring & Demonstrating** on taught courses within the School.

→ **NB** This is technically grouped within the website under Postgraduate Research (PGR) Support since most Postgraduate T&Ds are those on research degrees (e.g. PhDs) however those taking Taught Masters courses are also eligible to apply. The full direct link is shown below:

www.ed.ac.uk/geosciences/intranet/student-support/postgraduate-research-support/tutoring-and-demonstrating

This includes all information on how to find out about vacancies, how to apply and information on pay and support resources and admin provided by the School's PGR support and Teaching Organisation teams.

4.2 Computing Information – IT Web Pages and FAQs

→ Further mention should be given to the IT web pages at:

www.ed.ac.uk/geosciences/intranet/it
and
www.ed.ac.uk/geosciences/intranet/it/faq

→ These can also be reached quickly and conveniently from similar shorthand URLs:

www.geos.ed.ac.uk/it
www.geos.ed.ac.uk/it/faq

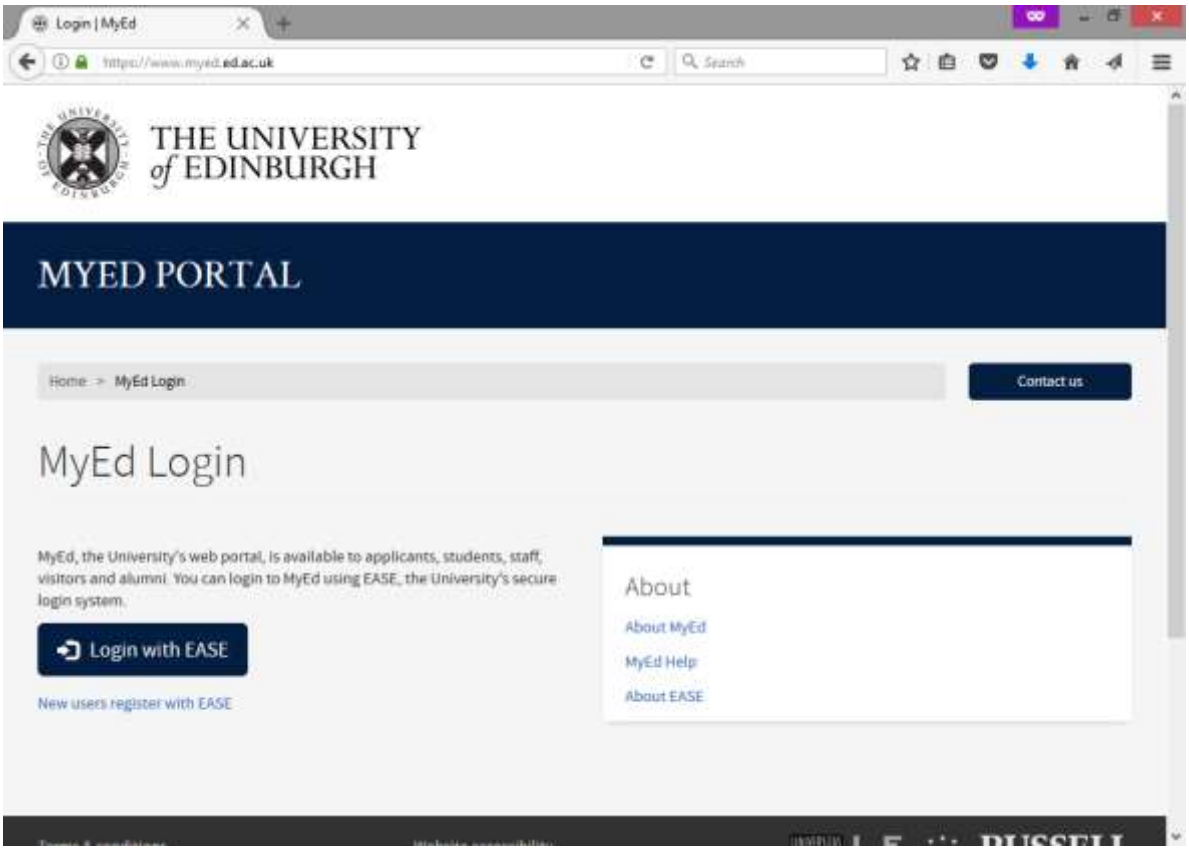
Information includes general guidance on computing matters including storage provided, keeping virus free, printing etc. as well as information on more specific tasks be it using particular software (office/admin or scientific), or web scripting.

4.3 News, Events, Seminars

→ Also of interest might be the **News & Events** section of the School website **www.ed.ac.uk/geosciences/news** listing various events and *most* research seminars within the school as well as (amongst others) the School's Edinburgh Earth Observatory Professional Seminar Series which aims to build links between academia, industry and government – also conveniently available via **www.eeo.ed.ac.uk/seminars**.

5 Introducing the MyEd Student Portal

5.1 The MyEd Page



→ Your EASE password provides you with access to the **MyEd** portal service at

www.myed.ed.ac.uk/.

Or you can click on any **MyEd** shortcut, e.g. on the **Windows Desktop** if present, or on any webpage link such as that at the foot of all the **University web pages**., or perhaps via a link in a **Lab Alert** which appears at login.

→ Click on **Login with EASE**. This will take you to the main MyEd page if you have previously logged in to (with) EASE in the same session, or will ask you to enter you EASE details if not already logged in.

→ Firstly note the tabs to the top of the screen and also the quick links **Dashboard** to the left hand side. The tabs house groupings of links to various support services within the University organised into different categories under each tab. First look at the Accounts tab (for things such as University **Card** details, **EASE Password**, and UoE **Print Credit** – **NB** you will be given a separate GeoSciences print quota for use on School printers only.) Now take a look at the other tabs in turn – **Studies**, **Services**, **Careers**, **Library** and **Help**. Don't worry if your MyEd differs slightly from this – the interface may vary from time to time and is highly customisable to each user's preferences. All individual links/panels are known as channels and can be added or removed as required.

→ Now take a proper look at the **Dashboard** and note that several of the most commonly used channels (e.g. **Email**, **Learn**, **Timetabling**, **Library**, etc.) have been provided here from across the many tabs, in a handy quick links style menu.

NB! If your MyEd doesn't exactly match the example above don't worry. The MyEd Portal is fully customisable as described in the **Help** tab. The key point is to note the individual *channels* which can be added to, or removed from, the MyEd *tabs*.

→ It is recommended you spend some time after this practical becoming familiar with the portal service and all it has to offer students. You may like to note some features of particular interest here to revisit later:

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6 Learn

For students taking taught courses the MyEd portal provides access to the University's online virtual learning environment (VLE) which is called **Learn**. Many of your courses will use the Learn system to a greater or lesser degree, so you should become familiar with its basic operation.

As well as being a **Student** in some courses, you may also undertake tutoring or demonstrating roles in some courses and may have **Teaching Assistant** status on Learn for these courses. Note it is not ordinarily possible to be a Student and Teaching Assistant in the same course.

It is also possible to be added to Learn courses where you are not formally assessed (i.e. 'sitting-in'). You may need to ask the **Course Organiser**, or **Administrator**, most likely a relevant **MSc Programme Administrator**, to add you as a special Learn course **Class Only** member in such cases.

6.1 Exploring Learn and Courses

→ Look at the **Learn** channel in **MyEd**. You may see a course called **GeoSciences Induction**. **Click** on this **link** to enter the course *if* it is there. If you do not see this course you can simply select any other course in which you are enrolled. Clicking on a course in this way will cause a pop-up window to appear – if you have pop-ups disabled in your browser settings you may need to right-click on the warning message that appears an open the Learn pop-up window.

→ You can see a more detailed view, including Learn courses enrolled in from earlier years, or others not shown on MyEd for any reason, by clicking on the **Launch Learn** button. This takes you to your Learn home page (also reached from anywhere inside Learn via the **My Learn** link). To the left is a list of all courses in which you are enrolled, grouped by role – e.g. Student, Teaching Assistant, etc.

→ Now look at the options under your personal drop-down menu at the top-right of the (*either*) window – to its *left* is a silhouette figure of a head and shoulders. This allows you to configure display settings, and change personal information. Also see the **Notifications Dashboard** where you can control how you wish to receive notifications.

→ Note the **Self-Enrol** feature enabling you to sign up to a range of online modules.

→ Finally, have a look again at a specific course if/once you have one such as the **GeoSciences Induction** course. Notice the menu of items on the left-hand side. These usually include a course home page link called **Course Content** or perhaps **Resource List** (lectures, practicals, etc.) found *under* **Course Content and Information**, as well as a larger **Content Collection** (like a File Manager). Various **Course Tools** such as **Announcements**, **Discussions**, and **Users and Groups** may prove useful, and of course the **Grade Centre**!

Updating Learn Content (for Teaching Assistants/Course Tutors):

A key point to note if you are ever preparing Learn material is that the underlying *files* are organised via the **Content Collection** (e.g. as if on disk) and links to files (or external web pages) via **Course Content and Information** (e.g. as if on a web page – Learn pages are essentially rendered in the web browser after all).

If you simply over-write files in the underlying **Content Collection**, the front-end **Course Content and Information** web page links to these remain unchanged making it much easier to modify/update content while retaining the existing look and feel of the course – i.e. without *breaking* any (content) links or requiring entirely new front-end Content to be created which can be time-consuming if several weeks' files require to be edited.

7 Printing

7.1 Physical Printing; Cloud Printing

University **Cloud Printing** is operated and available within the School. In School buildings networked Scanner-Copier-Printer multifunction devices are located on each floor. In some locations larger machines often fulfil a variety of roles, e.g. for teaching and admin, so consideration of other users should always be exercised upon undertaking large print or copying tasks. The strength of the cloud system is that jobs can be retrieved at any printer regardless of the location of the PC from which a job is submitted. To access a printer and/or retrieve submitted jobs from the cloud you simply need to touch your blue matriculation card on the card reader located on the printer. To submit a print job to the cloud you should use one of the two 'virtual' print queues that should already be in your list of Windows Printers:

Cloud - Mono and **Cloud - Colour**

The mono queue is always black and white and charges approx. 5p per sheet. The Colour queue allows the user to choose black and white or colour with A4 charges of approx. 5p or 30p respectively (assume 30p unless you take care to carefully adjust settings however). Importantly, charging only occurs at the point of job release (physical printing at the printer.)

Within the School a virtual quota is available for users. This is topped up weekly effectively giving unrestricted printing. IT can still monitor usage however and excessive use may require justification! Should you require more quota you can email **it.geos@ed.ac.uk** (**NB** You may elsewhere see an older email address of **ithelp@geos.ed.ac.uk** which is also still valid).

NB Only printers managed by *Schools* will allow you to print with any virtual credit you are given. Printers in centrally-managed IS Open Access Labs (such as the HSY Lab, otherwise known as Rm 2.02 in Geography) will require you to have real print credit on your account and WILL charge you! You can top up at various payment points in Libraries across the University or online by credit/debit card via the MyEd student portal.

7.2 Printing from Tablets, Phones, Smart Devices

You may be able to set-up the likes of VPN and wireless connections to enable you to print from a variety of mobile devices however the easiest method is to use the University's **EveryonePrint** facility by uploading a document or emailing it to **EveryonePrint@ed.ac.uk**. See the IS Computing web pages for more on this.

7.3 Printing (or saving) to PDFs; Virtual Printers

Often you will need to convert written documents (e.g. Word docs) to a portable document of some type such as PDF format files. Often, you can simply **Save** in **PDF** format however for software that does not offer this facility you will require a virtual printer which actually *prints* to a PDF format file.

→ There are often several virtual printers available used to create various documents, however PDF is an almost universal format and is provided by the **Adobe PDF** or **Microsoft Print to PDF** virtual printers shown in the list of printers on PCs in most labs. Why not try converting one of your favourite webpages to a PDF now?

7.4 Preparing Graphics for Print and Web – Managing Document Size

You should take care to ensure your use of graphics (and other file types/data) is appropriate to the task being undertaken. **Vector** graphics contain lots of geometric information meaning that these graphics can be scaled up without distortion, whereas simpler **bitmap** (sometimes called **raster**) graphics simply record the colour of each pixel and thus when scaled up in size become blocky due to the lack of detailed information when scaled to sizes larger than the original.

Print
Thus if preparing images for a high-quality paper publication you may be best advised to opt for vector. If you are taking photos then you will need to ensure that your image resolution is sufficient (i.e. pixel or cell size sufficiently small) for the image to be blown-up to the intended print size. **NB** Note however that print resolution is much higher than screen resolution as a rule, therefore images need not be nearly so big for screen display – e.g. in, or on, a web page.

Web
You may therefore wish to reduce image *file* size on web pages so as to avoid lengthy download times (e.g. in poorer areas/countries with little internet connectivity). You can make links to full resolution versions available which the viewer can access if they wish. To make a material difference however you will need to **resample** the image to reduce the amount of information contained within it. Note that resizing and resampling are thus different things! A simpler way to remember this is that if you are reducing the size of your image you should resample it afterwards so the number of pixels is not excessive for the image size. You should also explore reducing colour (bit) depth if not needed. A 24-bit image that can hold 16.7 million (i.e. 2^24) colours is excessive for a simple two-tone map of land and sea! Look at e.g. **IrfanView** on lab PCs which makes this easy.

You should also ensure that **crop**ped areas of images (particularly in e.g. **MS Office**) are deleted. [**NB** Once images are resampled or cropped the removed information is *gone* so be sure and keep your originals!!] This last point (cropping) is particularly relevant when attempting to manage document size (e.g. perhaps for papers submitted online).

→ You can explore manipulating graphics (in your own time if you wish) using the following graphics – save any images/docs created to your **PCInduction** folder:

www.geos.ed.ac.uk/~gisteac/wkzero/globe.jpg
www.geos.ed.ac.uk/~gisteac/wkzero/networkdemo.ppt

→ Try scaling images up and down, resizing, resampling and seeing what happens! For the network demo **PowerPoint** presentation you can explore grouping items together and copying and pasting these into a report in e.g. **Word**.

8 Data Science/Analysis: Using a dedicated Text Editor

While it is possible to use the layman (or woman)'s favourite data analysis tool the humble spreadsheet (e.g. **MS Excel**) for some quite sophisticated analysis it can often be a tad cumbersome or limited in terms of file sizes that can be processed. Working with textual data is often best done in a full-blown text editor program. While they can be used for quick PC only uses the likes of *Notepad* and *Wordpad* are really **not** up to much rigorous use nor are they any good for working across different computing systems (e.g. Windows PC and Linux web server). Instead, programs such as **PSPad**, and **Notepad++** allow you to handle huge file sizes beyond the capacity of Excel and do so without corrupting the data through inclusion of spurious formatting information. (**NB** ++ is programming-speak for increase by one unit, or upgrade if you like!)

Proper text editors such as PSPad and Notepad++ can save files in UNIX, PC, or (old) Macintosh formats from the Format menu (PSPad) or via Edit > EOL Conversion (Notepad++). This is very important due to the differences in the way that PC and UNIX machines handle (i.e. record or mark) the ends of lines. Windows uses both a linefeed (LF – move one line down) and carriage return (CR – move back to the start of the line – think of how an inkjet printer works!) UNIX only uses linefeeds. Using PC/DOS format files in UNIX thus introduces extra control characters at the end of each line that may affect the correct interpretation of your data by UNIX software, and critically this includes UNIX-based web servers!

Notepad++ is a slick program with very easy code syntax highlighting ('dialects of code styling') but has been observed to have noticeable file size limits* (albeit only with huge files).

We will therefore introduce the power of **PSPad** below however the same concepts apply to both programs.

*Of course for really big file sizes it is worth considering a non-graphical editor or use of script (e.g. **Python** or **R**) code to process the volume of data.

We shall use keystroke macros to re-arrange a file of point (x, y) locations with associated elevation values that have been recorded in y, x, value format (prob converted from lat, long!), into the more GIS-friendly (or simply more common) x, y, value order.

→ Open **PSPad** from **Start ► PSPad Editor ► PSPad editor**.

Now open the file xyzpoints.txt from **netdata**, at **G:\wkzero**, in **PSPad**. If you need to run the script again remember you access the netdata drive from the script at U:\SCE\GEOS\drive_mapping\Access Netdata. The first few lines of the file should look like this:

790005.00000,265005.00000,396.300
790005.00000,265015.00000,397.500
790005.00000,265025.00000,398.500

→ Try this:

- ➔ Place the cursor at the start of the first line
- ➔ From the Tools menu select Macro ► Start / Stop Recording
- ➔ Hold down the <shift> key and use the <right arrow> cursor key to select the numbers up to and including the first comma
- ➔ Cut this text with [Ctrl-X] (pressing X while holding the Ctrl key down)
- ➔ Using the arrow keys move the cursor to be immediately right of the next comma
- ➔ Press [Ctrl-V] to paste the cut text into the correct place
- ➔ Move the cursor to the next line down using the down arrow key
- ➔ Press Home
- ➔ From the Tools ► Macro menu again select Start / Stop Recording

→ You will be prompted to enter a name for this macro – you may like to call it something logical and descriptive such as swapXYcols. NB This particular macro will only work though for 6 figure co-ordinates with 6 decimal places!

→ You can play this macro from the Macro Manager under Tools ► Macro. Importantly you can play the macro 'x-times'. As there are 999 lines in the xyzpoints.txt file you simply need enter 999 here (or in fact 998 since you only need to repeat the macro from the second line onwards.) You can find out how many lines are in a file from View ► Line Numbers.

Notepad++ works in exactly the same way but offers a feature to **Run a Macro Multiple Times** with an additional option to **Run until the end of file** making life even easier!

9 Explore the available Help information

→ Make yourself familiar with the various sources of help information:

- Windows Help from **Start ► Tips** or via **Search** on the **Taskbar**.
- General student help from the Help tab in **MyEd**.
- University Information Services via: **www.is.ed.ac.uk**
- The GeoSciences IT help web pages via: **www.geos.ed.ac.uk/it/**
- The Frequently Asked Questions (FAQs) via: **www.geos.ed.ac.uk/it/FAQ**

Those using **Accessible** browsers can replace **www.geos.ed.ac.uk** with **www.ed.ac.uk/geosciences** (longer to type but more machine-readable; useful when exploring parts of the University website not visited before). Similarly **www.is.ed.ac.uk** will redirect to **www.ed.ac.uk/information-services** (screen-readers are programmed to navigate the hyphens in such long addresses!).

The preferred route for requesting assistance is via the University helpdesk system accessed for GeoSciences users by emailing **it.geos@ed.ac.uk** (note the older address **ithelp@geos.ed.ac.uk** is still valid should you have an urgent need, see this published, and are unable to remember the former!).

Emailing the team ensures the University's Call Management System is employed and enables queries (calls) to be routed to the most suitable individual regardless of their physical location. Various School Buildings do however operate local drop-in facilities via the on-duty Computing Officer. See the IT web pages for the latest information.

10 Logging off Windows

→ From the **Start** button only a limited number of power off options are available. To logoff/out therefore, instead **right**-click on the **Start** button, then from **Shut down or sign out** select **Sign out**.

Always remember to log off (i.e. **Sign out**).

APPENDIX: Mapping Network Drives Manually

If you experience any problems running a script such as the Access Netdata script used today, or one is not available e.g. outside of the University network*, you can easily map network drives manually. We will make another connection to netdata for now as an example. **NB** The Access Netdata script should work from within all University labs so if you have problems with this later then please email **ithelp@geos.ed.ac.uk**.

*To connect to network drives from outside the University involves a little extra work, since this requires you to setup something called a VPN (Virtual Private Network) connection on the computer you wish to connect to the Edinburgh network with, before you are able to map the network drives in Windows. This is relatively straightforward however and only requires to be set up once – see below.

Additionally, the **U:** drive used in University labs is set to not be reachable from outside the university network (even with a VPN connection) thus you will require to manually map your network drive should you require access to your files. [NB You can use a simple SFTP client to access: your GeoSciences home directory; the GeoSciences network; and, if appropriate, the Edinburgh DataStore; which doesn't require the VPN connection but is arguably not nearly as convenient. PhD students may also be able to use Remote Desktop to connect to their Windows PC exactly as per the School-supported mechanism to connect directly to Linux.]

Mapping Network Drives within the University

Mapping Shared Folders/Network Drives, e.g. Netdata, Home Directories, etc.

(→) **NB** It is not actually necessary to permanently map any network location, you can simply type the address into a **File Explorer** window, however mapping will save much repeated typing and allow drives to be available at each login.

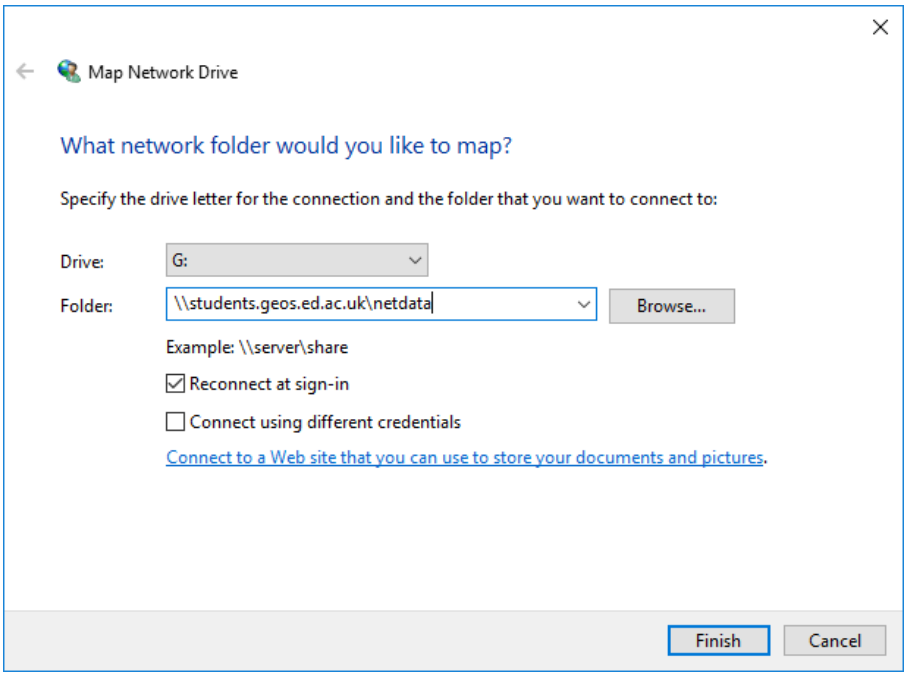
→ To map a drive, click on **File Explorer** then click on **This PC** and then the **Computer** tab that appears along the top of the window.

→ Now within the **Network** section of the *ribbon* interface which appears, go to **Map network drive ► Map network drive**. See below for an illustration.

(→) The *form* of the text you require in the **Folder:** box is usually:
\\students.geos.ed.ac.uk\shared_folder_name

(→) e.g. in the case of **Netdata** (shown overleaf) this would become:
\\students.geos.ed.ac.uk\netdata

NB If you are a member of staff the mapping becomes:
\\staff.geos.ed.ac.uk\shared_folder_name



(→) To connect *your* own GeoSciences **home directory** the form is:
\\students.geos.ed.ac.uk\<uun>

(→) i.e. for user **gisteac** (only!) – a staff account – this would be:
\\staff.geos.ed.ac.uk\gisteac

Remember to replace <uun> with your own Universal Username (UUN), e.g. snnnnnnn, v1isurna, v1isurn2, isurname, or isurnam7 etc.

(→) Additionally note that **\\students.geos.ed.ac.uk** on its own will allow you to see all shared folders on the network you have access to – e.g. if you are unable to remember the exact name of a shared drive to which you have been given access.

One other thing to note is that some GeoSciences shares (shared folders) may only be accessible from within a **School** computing lab. Some shares however are available across the entire university network.

Also see: **www.ed.ac.uk/geosciences/intranet/it/data-storage/personal-storage**

Mapping Web Shares (GeoSciences File-Based Web Server)

(→) If you have access to the School's file-based web server you can reach this via:
\\students.geos.ed.ac.uk\web\<uun>

i.e. specifically via the subsidiary **\web** part of the Geos network this time; kept slightly separate from the main network due to the inherent security precautions required whenever content is (necessarily) exposed to the world over the web.

→ Also see: **www.ed.ac.uk/geosciences/intranet/it/webspace/filebased**

Accessing Network Drives Outside the University

→ To access network drives from outwith the university network, e.g. at home, you can first use something called a Virtual Private Network (VPN) connection. If you wish to find out more about this see:

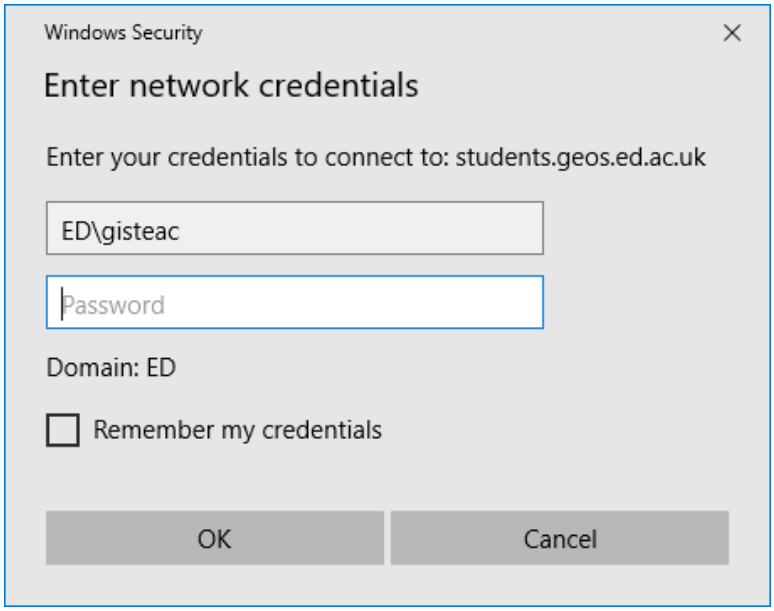
www.ed.ac.uk/information-services/computing/desktop-personal/vpn

(→) When accessing from home you will also need to ensure that you use the correct login credentials (including *domain*, or *network* name – i.e. **ED** or **ed.ac.uk**) otherwise Windows will try and connect with whichever login details you use to login to your home computer rather than your university details!

→ Enter the folder path as usual but also tick the **Connect using different credentials** box before clicking **Finish**. In the window which appears enter:

ED\<uun> in the **User name** box
Your usual **Windows** login password* in the **Password** box

→



Now Click **OK**. If you have any problems you can first try putting **<uun>@ed.ac.uk** in the **User name** box *instead* of **ED\<uun>**. If still struggling then you can draft an email to **it.geos@ed.ac.uk** (or **ithelp@geos.ed.ac.uk**) but first take another look at the **IT FAQ web pages** mentioned in the practical.

*Again, your Windows password should have been set to be whatever your EASE password is set to when you set-up your EASE details. If not you can simply re-set your EASE details to achieve this.