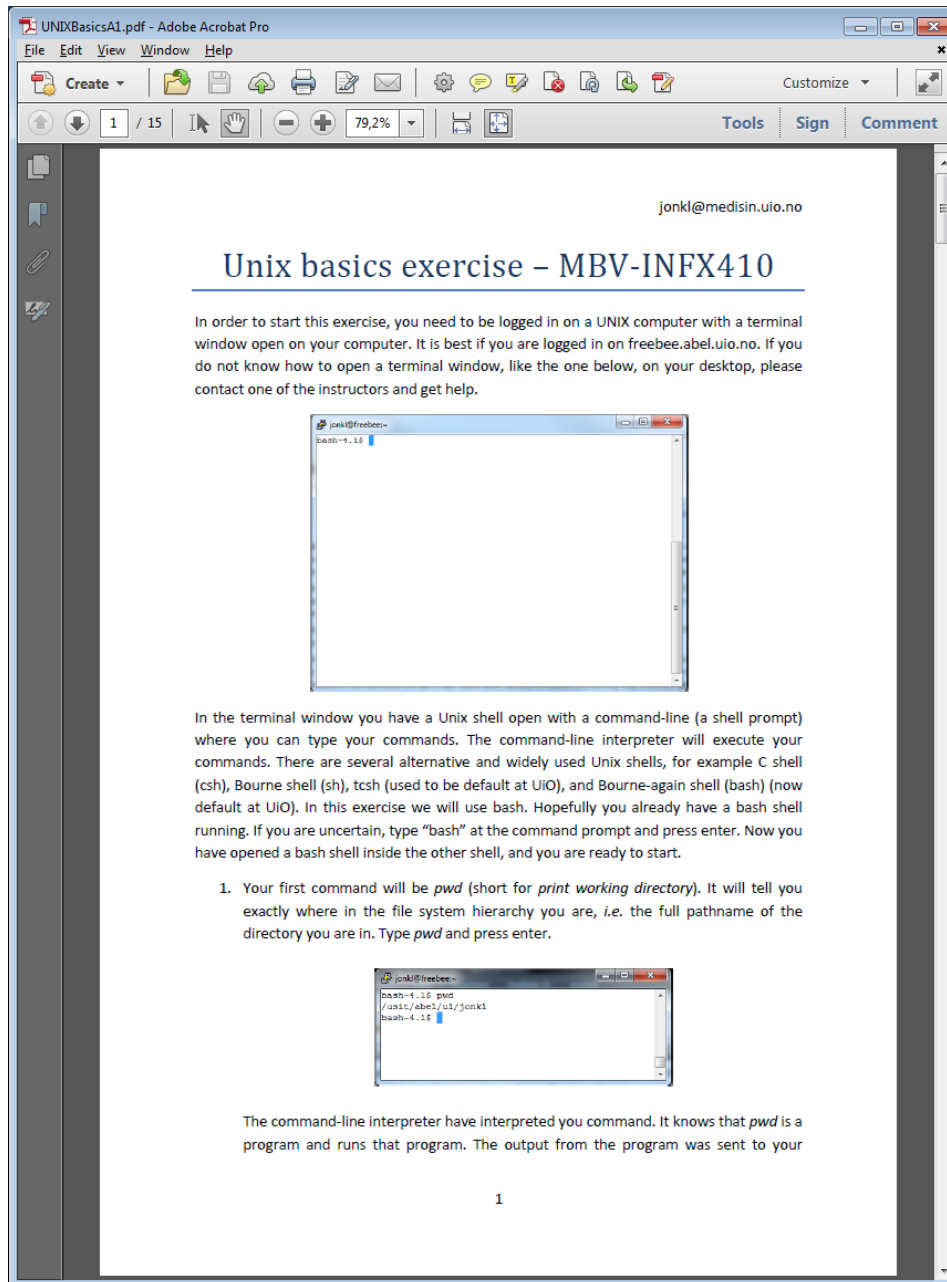


# Some more on Unix and even more



The screenshot shows a PDF viewer window titled 'UNIXBasicsA1.pdf - Adobe Acrobat Pro'. The document content includes the email 'jonkl@medisin.uio.no', a title 'Unix basics exercise - MBV-INF410', and introductory text about logging into a UNIX computer. It features two terminal window screenshots: the first shows a blank terminal with a prompt, and the second shows the terminal output of the 'pwd' command, which is '/usr1/abe1/u1/jonkl'. The document is on page 1 of 15, zoomed to 79.2%.

Very important to be able to use basic Unix

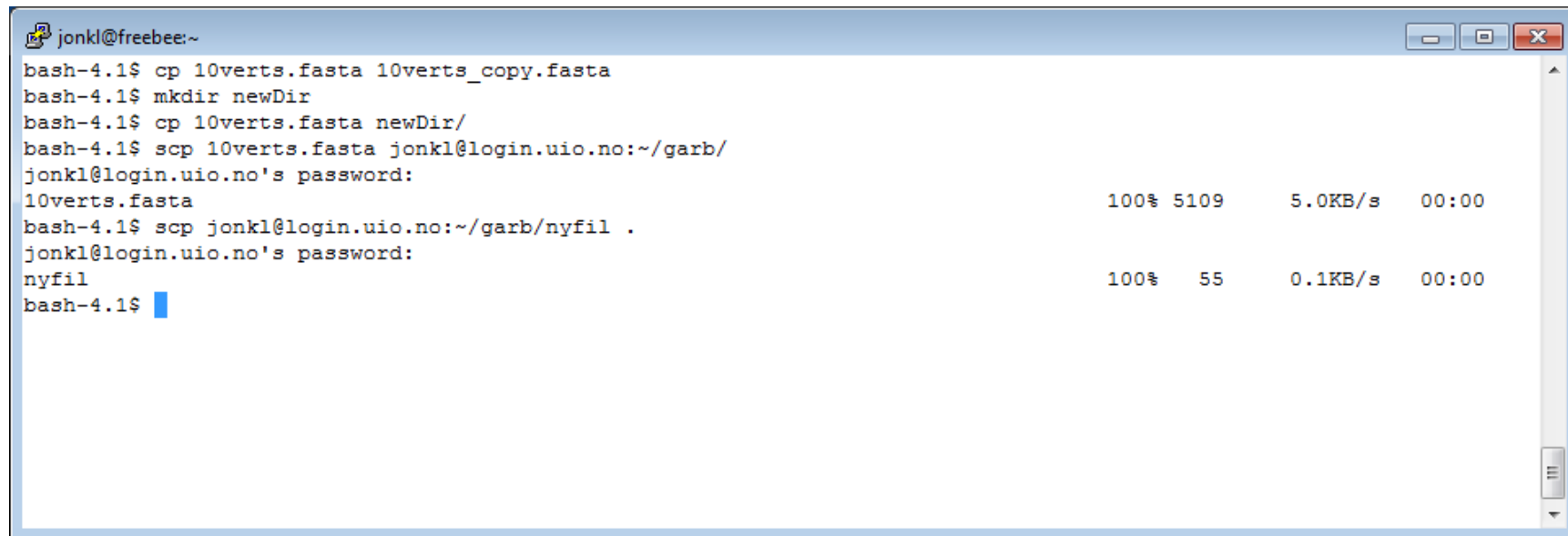
Make your own Unix scripts is *not* very central

Most likely you will instead use Python for writing small programs/scripts

# More Unix stuff

- You ***must*** be able to move files between laptop and a Unix server such as `freebee.abel.uio.no` or `login.uio.no`!
- That is, between the harddisk on your laptop and your UiO home area (M:)
- Most likely you use "UiO Programkiosk"
  - Or WebDrive, Cyberduck etc.

# How to copy files from one Unix machine to another



```
jonkl@freebee:~  
bash-4.1$ cp 10verts.fasta 10verts_copy.fasta  
bash-4.1$ mkdir newDir  
bash-4.1$ cp 10verts.fasta newDir/  
bash-4.1$ scp 10verts.fasta jonkl@login.uio.no:~/garb/  
jonkl@login.uio.no's password:  
10verts.fasta                                100% 5109      5.0KB/s   00:00  
bash-4.1$ scp jonkl@login.uio.no:~/garb/nyfil .  
jonkl@login.uio.no's password:  
nyfil                                          100%   55      0.1KB/s   00:00  
bash-4.1$
```

If you

- only have an MS Windows laptop
- and M: and home area on login.uio.no and freebee.abel.uio.no are all the same  
you do not need to use this!

# How to copy files from one Unix machine to another

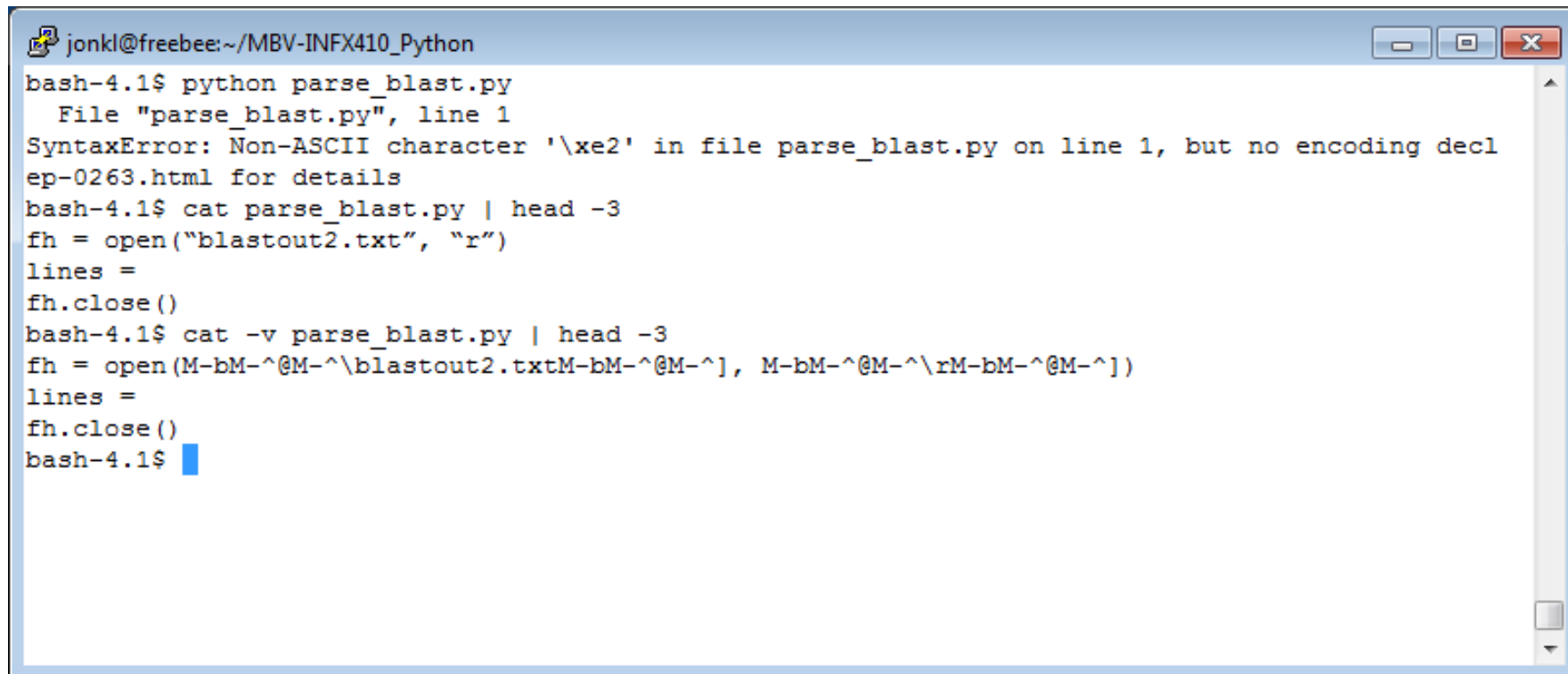
```
jonkl@freebee:~  
bash-4.1$ cp 10verts.fasta 10verts_copy.fasta  
bash-4.1$ mkdir newDir  
bash-4.1$ cp 10verts.fasta newDir/  
bash-4.1$ scp 10verts.fasta jonkl@login.uio.no:~/garb/  
jonkl@login.uio.no's password:  
10verts.fasta  
bash-4.1$ scp jonkl@login.uio.no:~/garb/nyfil .  
jonkl@login.uio.no's password:  
nyfil  
bash-4.1$ █
```

If you

- only have an MS Windows laptop
- and M: and home area on login.uio.no and freebee.abel.uio.no are all the same you do not need to use this!

# Non-printing characters

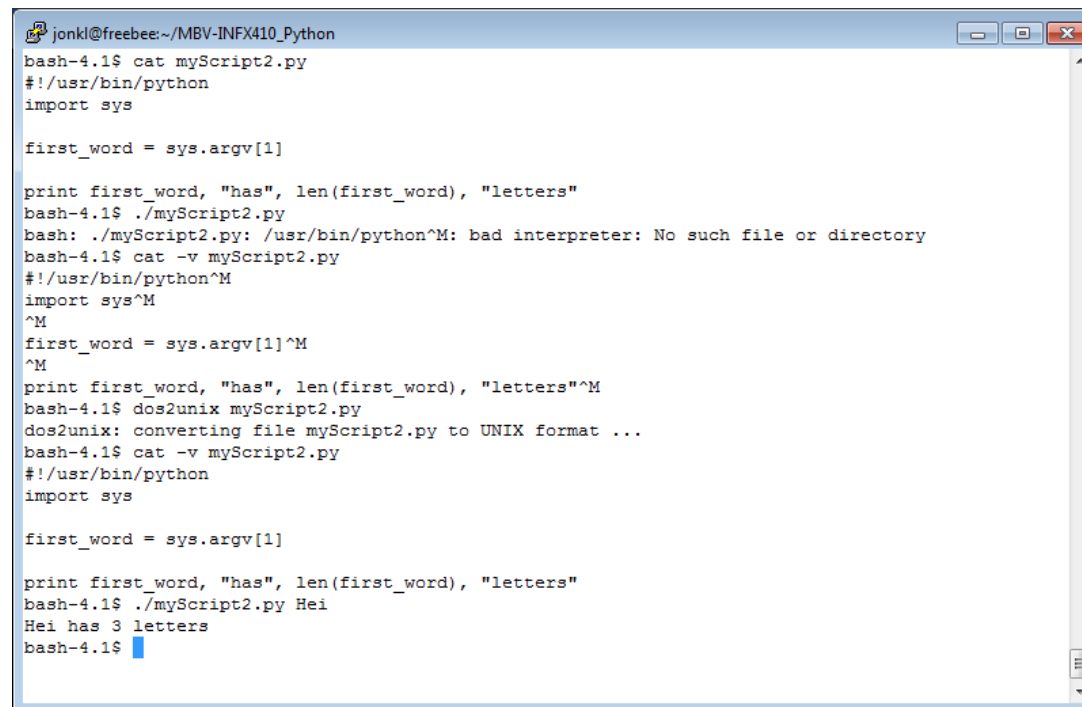
- Use `cat -v` to see “invisible” control codes in the text



```
jonkl@freebee:~/MBV-INF410_Python
bash-4.1$ python parse_blast.py
  File "parse_blast.py", line 1
SyntaxError: Non-ASCII character '\xe2' in file parse_blast.py on line 1, but no encoding decl
ep-0263.html for details
bash-4.1$ cat parse_blast.py | head -3
fh = open("blastout2.txt", "r")
lines =
fh.close()
bash-4.1$ cat -v parse_blast.py | head -3
fh = open(M-bM-^@M-^\blastout2.txtM-bM-^@M-^], M-bM-^@M-^\rM-bM-^@M-^])
lines =
fh.close()
bash-4.1$
```

# End-of-line markers (EOLs) are *not* the same in Unix and MS Windows!

- Use *cat -v* to see “invisible” control codes, for example Windows type EOLs
- Use *dos2unix* command to go from MS Windows to Unix
- Use *unix2dos* command to do the reverse



```
jonkl@freebee:~/MBV-INF410_Python
bash-4.1$ cat myScript2.py
#!/usr/bin/python
import sys

first_word = sys.argv[1]

print first_word, "has", len(first_word), "letters"
bash-4.1$ ./myScript2.py
bash: ./myScript2.py: /usr/bin/python^M: bad interpreter: No such file or directory
bash-4.1$ cat -v myScript2.py
#!/usr/bin/python^M
import sys^M
^M
first_word = sys.argv[1]^M
^M
print first_word, "has", len(first_word), "letters"^M
bash-4.1$ dos2unix myScript2.py
dos2unix: converting file myScript2.py to UNIX format ...
bash-4.1$ cat -v myScript2.py
#!/usr/bin/python
import sys

first_word = sys.argv[1]

print first_word, "has", len(first_word), "letters"
bash-4.1$ ./myScript2.py Hei
Hei has 3 letters
bash-4.1$
```

# End-of-line markers (EOLs) are *not* the same in Unix and MS Windows!

Jon K. Lærdahl,  
Structural Bioinformatics

```
jonkl@freebee:~/MBV-INFX410_Python
bash-4.1$ cat myScript2.py
#!/usr/bin/python
import sys

first_word = sys.argv[1]

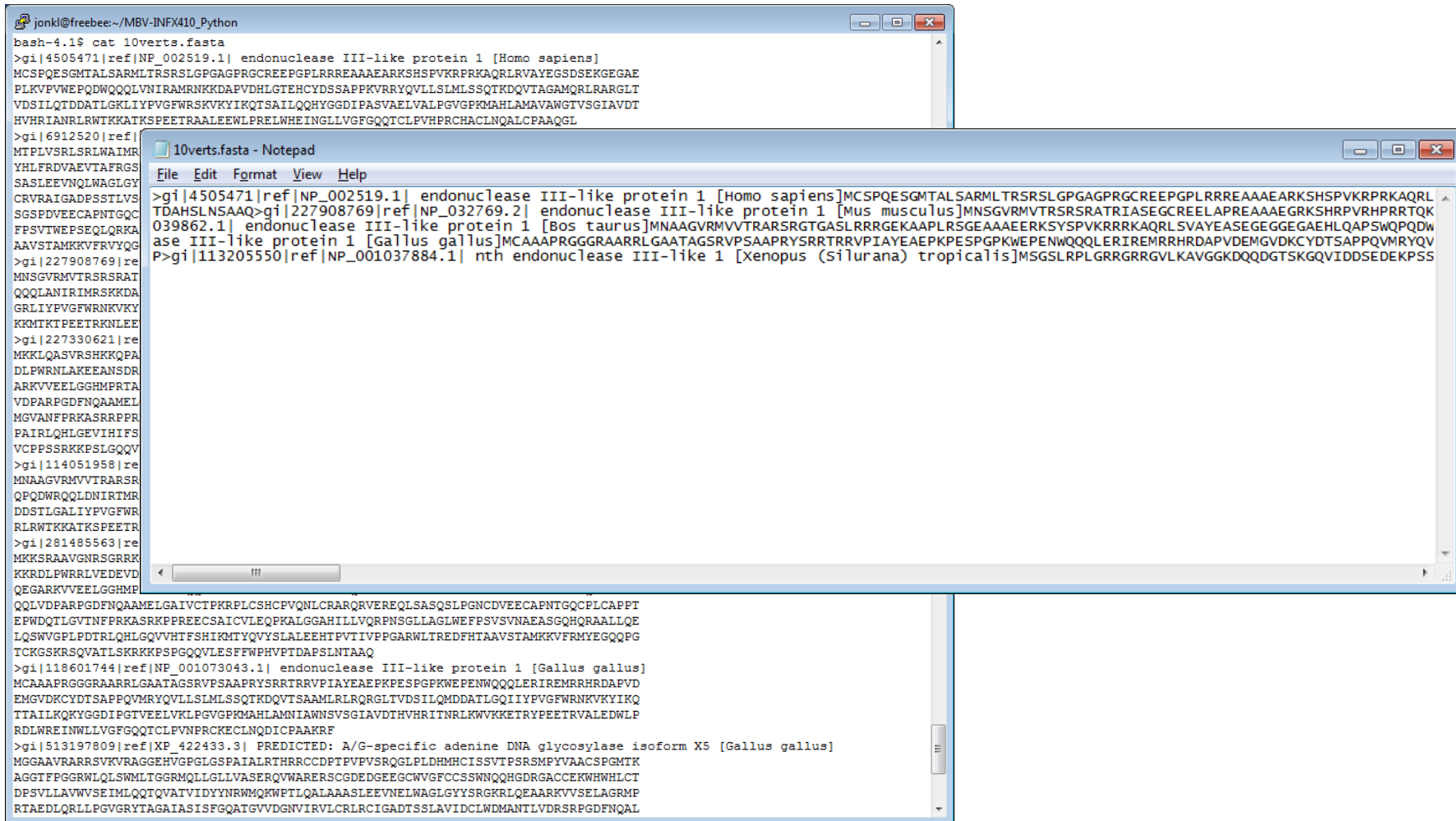
print first_word, "has", len(first_word), "letters"
bash-4.1$ ./myScript2.py
bash: ./myScript2.py: /usr/bin/python^M: bad interpreter: No such file or directory
bash-4.1$ cat -v myScript2.py
#!/usr/bin/python^M
import sys^M
^M
first_word = sys.argv[1]^M
^M
print first_word, "has", len(first_word), "letters"^M
bash-4.1$ dos2unix myScript2.py
dos2unix: converting file myScript2.py to UNIX format ...
bash-4.1$ cat -v myScript2.py
#!/usr/bin/python
import sys

first_word = sys.argv[1]

print first_word, "has", len(first_word), "letters"
bash-4.1$ ./myScript2.py Hei
Hei has 3 letters
bash-4.1$
```



# End-of-line markers (EOLs) are *not* the same in Unix and MS Windows!



The image shows a terminal window and a Notepad window. The terminal window displays the command `cat 10verts.fasta` and the output of the file, which is a FASTA format file. The Notepad window shows the same file, but with different line endings. The terminal window shows the file content with Unix-style line endings (LF), while the Notepad window shows the file content with Windows-style line endings (CRLF). The Notepad window title is "10verts.fasta - Notepad".

```
bash-4.1$ cat 10verts.fasta
>gi|4505471|ref|NP_002519.1| endonuclease III-like protein 1 [Homo sapiens]
MCSPEQESGMTALSARMLTRSRLGPGAGPRGCREEPGLRRREAAAARKSHSPVKRPRKAQRLRVAYEGSDSEKGEAE
PLKVPVWVEPQQQQLVNIIRAMRNKKDAPVDHLGTEHCYDSSAPPKVRRYQVLLSLMSSQTQKQVTAGAMQRLRARGLT
VDSILQDDATLGLKIYPVGFWRSKVKYIKQTSAILQQHYGGDIPASVAELVALPGVGFPMMAHLAMAVANGTIVSGIAVDT
HVHRIANRLRWTKKATKSPETRAALEEWLPRELWHEINGLLVGFQQTCLPVPVPRCHACINQALCPAAQGL

>gi|6912520|ref|
MTPLVSRLSRLWAIMR
YHLFRDVAEVTAFRGS
SASLEEVDQWAGLGY
CRVRAIGADPSSTLVS
SGSPDVEECAPNTGQC
FSPVTWEPSEQLQRKA
AAVSTAMKKVFRVYQG
>gi|227908769|re
MNSGVRMVTRSRAT
QQQLANIRIMRSKKA
GRLIYPVGFWRNKVKY
KKMTKTPEETRNLEE
>gi|227330621|re
MKKLQASVRSRSHKQPA
DLPWRNLAKEANSR
ARKVVEELGGHMPRTA
VDPARPGDFNQAMEL
MGVANFPRKASRRPPR
PAIRLQHLGEVIHIFS
VCPSSRKKPSLGGQV
>gi|114051958|re
MNAAGVRMVTARSR
QPQDWRQQLDNIRMR
DDSTLGALIYPVGFWR
RLRWTKKATKSPETR
>gi|281485563|re
MKKSRAAVGNRSGRRK
KKRDLFWRLVEVD
QEGARKVVEELGGHMP
QQQLVDPARPGDFNQAMELGAIVCTPKRPLCSHCQVQLNCRARQVREREQLSASQSLPGNCDVEECAPNTGQCPLCAPPT
EPWQDLGVTINFPKASRKPPEECSAICVLEQPKALGGAHILLVQRPNISGLLAGLWFFPSVSVNAEASGQHRAALLQE
LQSWVGLPDLRLQLHLGQVVTFSHKIMTYQVYSLALEEHTPVTIVPPGARWLTREDPHTAAVSTAMKKVFRMYEQGQPG
TCKGSKRSQVATLSKRRKPSPGQVLESFFWPHVPTDAPSLNTAAQ
>gi|118601744|ref|NP_001073043.1| endonuclease III-like protein 1 [Gallus gallus]
MCAAAPRGGGRAARRLGAATAGSRVPSAAPRYSRRTTRVPIAYEAEKPKPESPGPKWEPENWQQQLERIREMRRHRDAPVD
EMGVDKCYDT SAPPQVMRYQVLLSLMSSQTQKQVTSAAMLRLRQRGLTVDLSLQMDATLGGIYPVGFWRNKVKYIKQ
TTAILLKQYGGDIPGTVEELVKLPGVGFPMMAHLAMNIAWNSVSGIAVDTHVHRIANRLRWTKKATKSPETRAALEEWL
RDLNREINWLLVGFQQTCLPVPVPRCKECLNQCIPAAKR
>gi|513197809|ref|XP_422433.3| PREDICTED: A/G-specific adenine DNA glycosylase isoform X5 [Gallus gallus]
MGGAARVARRSVKVRAGGHEVGPGLGSPAIALRTHRRCCDPTVPVSRQGLPLDHMHCISSVTPSRSMFYVAACSPGMTK
AGGTFFPGGRWQLSWMLTGGRMQLLGLLVASERQVWARERSCGDEDEGEEGCVWGFCCSSWNQQHGDGACCEKWHHLCT
DPSVLLAVVNSEIMLQQTQVATVIDYNNRMQKWFLLQALAAASLEEVNELWAGLGYYSRGRKRLQEAARKVVSSELAGRMP
RTAEDLQRLPGVGRYTAGAIASISFGQATGVVDGNVIRVLCRLRCIGADTSSLAVIDCLWDMANTLVDRSRPGDFNQAL
```

# Jalview, Java, certificates etc.

The image displays two overlapping windows from the Jalview software. The background window is the 'Jalview alignment editor', which shows a list of protein sequences aligned. The sequences are listed on the left, with their accession numbers and positions (e.g., ENSPVAP00000010465/1-3226). The alignment is shown as a grid of dashes and letters. The foreground window is a 'Security Warning' dialog box. It asks 'Do you want to run this application?' and provides details about the application: Name: jalview.bin.Jalview, Publisher: UNKNOWN, Location: http://www.jalview.org. It includes a 'Risk' section stating that applications from unknown publishers are potentially unsafe. At the bottom, there are 'Run' and 'Cancel' buttons. A yellow box at the bottom of the dialog contains the text: 'This application will be blocked in a future Java security update if it does not contain the Permissions attribute. Please contact the Publisher for more information. More Information'. The alignment view window shows a detailed view of the alignment for the sequence ENSPVAP00000010465/1-3226, with a 'FASTA' format selected and 'Apply' and 'Close' buttons at the bottom.

# Back up your data!

- Use M: at UiO
- Same as ~/ Unix home area
- Easy to get back deleted files or *all* your files, if they are lost
- No fun to loose all notes and all manuscripts for your MSc or PhD thesis?

# You will only be able to take the exam if you follow all teaching!

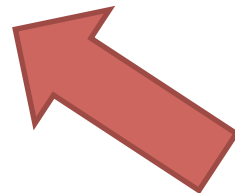
If you cannot finish the exercises during  
the exercise sessions, finish them at  
home!

|         | Week 46   | Week 47               | Week 48  | Week 49               | Week 50                 | Week 51                  |
|---------|---|-----------------------|--|-----------------------|-------------------------|--------------------------|
| Mon     | Lecture/<br>exercises<br><br>1 <sup>st</sup> day of course<br>– Nov 9 | Lecture/<br>exercises | Study day/work<br>on obligatory<br>take-home<br>assignment | Lecture/<br>exercise  | Study day               |                          |
| Tues    | Lecture/<br>exercises   | Lecture/<br>exercises | Study day/work<br>on oblig take-<br>home<br>assignment     | Lecture/<br>exercises | Study day               |                          |
| Wed     | Lecture/<br>exercises   | Lecture/<br>exercises | Study day/work<br>on oblig take-<br>home<br>assignment     | Lecture/<br>exercises | Take-home<br>exam start | Take-home<br>exam finish |
| Thurs   | Lecture/<br>exercises   | Lecture/<br>exercises | Study day/work<br>on oblig take-<br>home<br>assignment     | Lecture/<br>exercises |                         |                          |
| Fri     | Lecture/<br>exercises   | Lecture/<br>exercises | Hand in oblig<br>take-home<br>assignment                   | Study day             |                         |                          |
| Sat/Sun |   |                       |  |                       |                         |                          |

# Details on all participants

- All students must send me an e-mail with this content and format (to [jonkl@medisin.uio.no](mailto:jonkl@medisin.uio.no)):

“Course version” “e-mail address” “full name”



I will send the exam and  
other information to this  
address

***IMPORTANT!***

for example,

MBV-INF9410A jonkl@medisin.uio.no Jon K. Lærdahl

# PLEASE, get a mouse!

