Mendel Genetic Counseling

Installation Instructions

using the Julia Icon (REPL)

Before the Workshop

- It is important to install Julia

- Install Open Mendel modules:
  - SnpArrays.jl
  - MendelSearch.jl
  - MendelBase.jl
  - MendelGeneticCounseling.jl#ASHG2019

- And test Open Mendel with a small test example

Notebook() or Commands within the Icon?

- The Open Mendel team prefers to use Jupyter notebooks whenever possible. See for example MendelGeneticCounselingTutorial.ipynb at https://github.com/OpenMendel/GeneticCounseling_ASHG2019. We prefer them primarily because they make reproducibility easier. However you might find it easier to run Julia by just clicking on the Julia Icon.

- This presentation is designed to assist users who can't or don't want to use the IJulia- Jupyter notebook option.

Step 1: Install Julia and Open Julia

- Go to the Julia download site, https://julialang.org/downloads/ and download the latest stable release of julia (version 1.2.0 on 9/19/2019).

- Once Julia is downloaded click on the julia icon to open the Icon

Step 2: Installing MendelGeneticCounseling

- Use the package manager in Julia.

- Invoke by typing "]" at the Julia prompt

- Add **in order** the modules: SnpArrays.jl, MendelSearch.jl, MendelBase.jl and MendelGeneticCounseling.jl#ASHG2019

pkg> add https://github.com/OpenMendel/SnpArrays.jl

pkg> add https://github.com/OpenMendel/MendelSearch.jl

pkg> add https://github.com/OpenMendel/MendelBase.jl

pkg>add https://github.com/OpenMendel/MendelGeneticCounseling.jl#ASHG2019

- Then give the command: build SpecialFunctions

pkg> build SpecialFunctions

- To exit the package manager press the delete key

Step 3: Check for Input files

- Check that working directory contains your files

julia> pwd()

julia> readdir()

- If the files aren't there change to the appropriate directory :
  julia> cd("/Users/janets/GeneticCounseling/SmallSample")

- Then check for the input files by typing

julia> readdir()

"ControlSmallParametric.txt"

"HeterozygousRisk.txt"

"LocusSmall.txt"

"PedSmall.csv"

"PhenoSmall.txt"

"SampleOutput"

Step 4: Run MendelGenetiCounseling

- First compile MendelGeneticCounseling

julia> using MendelGeneticCounseling

- Then run the test problem by typing:

julia> GeneticCounseling("ControlSmallParametric.txt")

- Result:

The risk = 0.03892.

If you Decide you want to use the Jupyter Notebooks

- To use Jupyter notebooks within Julia you want to install IJulia within the package manager

] add IJulia

- then leave the package manager by hitting the delete key

- To run IJulia

julia>using IJulia

julia>notebook()

- When finished type "control C"

Step 5: Report Any Difficulties

- We've tried hard to test the installation and implementation of MendelGeneticCounseling on both Mac and PCs but you may have problems we haven't encountered before.

- So please report any problems on the open mendel github site or by email jsinshei@g.ucla.edu as soon as you have them (don't wait until the week of the workshop because we might not be able to help you in time).

- Be sure to provide as much information as you can on the commands you tried and the error messages you received. Also give us an email address that you check on a regular basis so the Open Mendel team can help you solve any problems.