Getting started

Let's get this party sta-a-a-arted!

Semantic nitpicking

- language: syntactic and semantic rules that describe a set of valid textual inputs, and their meaning
- computer language: a language somehow understood by a computer
- programming language: a computer language that describes instructions to be executed by a computer
- (source) code: text written in a computer language
- algorithm: instructions to solve a specific problem (language agnostic)
- program: the implementation of algorithm(s) in a programming language, once compiled or interpreted. "A piece of software". Something that the computer can execute.

Not all computer languages are programming languages (eg. HTML describes data, not instructions).

- to code: to write text in a computer language
- to program: to write text in a *programming* language, ie. to write a program

Tools

To program, you will need:

- a computer
- a text editor (not a text *processor* like Word)
  - Notepad theoretically ok but...
  - Notepad++
  - Sublime Text
  - ...
- a compiler/interpreter for your language of choice
- (optional) some libraries written for your language of choice
- documentation for your tools and languages
  - lots of it on the web
  - books

But first, we need to pick a language.

Lua 5.1

http://www.lua.org

- interpreted (no separate compiling)
- dynamic (most checks happen at runtime)
- lightweight (few, sufficient features)
- simple syntax
- fast (for an interpreted language)
- very expressive/extensible
- widely used (Angry Birds, World of Warcraft UI, scripting of many very big games...)

Lua for Windows

An "all included" package:

- Lua interpreter
- A text editor (SCiTE) with Lua syntax highlighting and execution
- Many useful libraries

Lua for Windows

Other OSes

On Debian based Linux distributions:

```
sudo apt-get install lua51
```

Mac OS X:

```
curl -O http://www.lua.org/ftp/lua-5.1.5.tar.gz
tar -xzvf lua-5.1.5.tar.gz
cd lua-5.1.5
make macosx
make test
sudo make install
```

Text editor

I recommend Sublime Text

- Windows, Linux, Mac OS X
- free for "evaluation purposes" (will nag you once in a while)
- veeeeeery good text editor

To be able to run Lua programs from the editor, select `Tools -> Build System -> New Build System...`, paste this in the file:

```
{
    "cmd": ["lua", "$file"],
    "file_regex": "^lua: (...*?):([0-9]*):?([0-9]*)",
    "selector": "source.lua"
}
```

Save file as `Lua.sublime-build` in the proposed directory. Run a file with `Ctrl-B`.

Checking the install

A good old "Hello World" program:

```
print("Hello, world!")
```

- save it in a file `hello.lua`
- run it from command line `lua hello.lua`, or from the text editor (eg. `Ctrl-B` in Sublime)

Should output:

```
Hello, world!
```

Lua ressources

- Reference manual: **all** there is to know. The entire definition of the language and its standard library.
- Programming in Lua 1st ed.: text book by the author of the language. Just as complete, but more accessible as learning material.
- lua-users wiki: snippets, FAQ, libraries...
- Google is your friend.

Course content

A healthy mix of:

- general knowledge about:
  - computers
  - programming
  - programming languages
  - other computer languages
  - more computer stuff
- algorithmics (how to solve problems)
- Lua
  - syntax
  - semantics
  - standard library
- other libraries/frameworks
  - interactive applications (games, basically)
    - handling mouse/keyboard input
    - graphical output
  - introduction to network
  - more if interested!

Suggested format

Teacher:

- these slides on a screen
- a Lua console for quick demos
- a text editor for longer examples

Student

- own computer with a text editor + interpreter handy
- Lua reference manual open in a browser tab

> “ We must learn to walk before we can run.