



## The Plan

This is the plan for the semester. We probably will not adhere to it exactly, since it is just an estimate of what we will cover. This is only the second time that I am teaching this course based upon the use of GTK+, and much as changed in the three years since I last taught it. This is also the first time that we have a book, and what appears to be a good book at that, so whereas last time I developed the content somewhat in a vacuum, this time we will follow the sequence of topics from the book, except that I will add a few things here and there, and spend less time on other things. We shall see.

- Introductory Material
  - UNIX Basics
    - \* Command line development (compiling, linking, debugging, libraries)
    - \* Using the make utility
    - \* C versus C++ in the course
  - Brief History of GTK+
  - The X Window System
  - GTK+ and Supporting Libraries
    - \* GLib
    - \* GObject
    - \* GDK
    - \* GdkPixBuf
    - \* Pango
    - \* ATK
  - Language Bindings
  - Installing GTK on Linux and Windows
- A First GTK+ Application
  - Initializing GTK+
  - The Widget Hierarchy
  - Windows
  - Main Event Loop
  - pkg-config
  - Signals, Events, and Callbacks
  - Pending Events
  - Widget Properties
- Container Widgets
  - GtkContainer
  - Decorator Containers
  - Layout Containers
  - Resizing Children



- Container Signals
- Horizontal and Vertical Boxes
- Horizontal and Vertical Panes
- Tables
- Table Packing
- Table Spacing
- Fixed Containers
- Expanders
- Handle Boxes
- Notebooks
- GtkNotebook Properties
- Tab Operations
- Event Boxes
- Basic Widgets
  - Using Stock Items
  - Toggle Buttons
  - Managing Widget Flags
  - Check Buttons
  - Radio Buttons
  - Text Entries
  - Entry Properties
  - Inserting Text into a GtkEntry Widget
  - Manipulating GtkEntry Text
  - Spin Buttons
  - Adjustments
  - A Spin Button Example
  - Horizontal and Vertical Scales
  - Widget Styles
  - The GtkStyle Structure
  - Resource Files
  - Additional Buttons
  - Color Buttons
  - File Chooser Buttons
  - Font Buttons
- Dialogs
  - Creating Your Own Dialogs
  - Creating a Message Dialog
  - Nonmodal Message Dialog
  - Another Dialog Example
  - Built-in Dialogs



- Message Dialogs
- The About Dialog
- File Chooser Dialogs
- Color Selection Dialogs
- Font Selection Dialogs
- Dialogs with Multiple Pages
- Creating GtkAssistant Pages
- GtkProgressBar
- Page Forward Functions
  
- Using GLib
  - GLib Basics
  - Basic Data Types
  - Standard Macros
  - Message Logging
  - Memory Management, Slices, Allocation
  - Utility Functions
  - Environment Variables
  - Timers
  - File Manipulation
  - Directories
  - File System
  - The Main Loop
  - Contexts and Sources
  - Timeouts
  - Idle Functions
  - Data Types
  - Strings
  - Quarks
  - Keyed Data Lists
  
- The Text View Widget
  - Scrolled Windows
  - Text Views
  - Text Buffers
  - Text View Properties
  - Pango Tab Arrays
  - Text Iterators and Marks
  - Editing the Text Buffer
  - Cutting, Copying, and Pasting Text
  - Searching the Text Buffer
  - Scrolling Text Buffers



- Text Tags
- Inserting Images
- Inserting Child Widgets
- GtkSourceView
- The Tree View Widget
  - Parts of a Tree View
  - GtkTreeModel
  - GtkTreeViewColumn and GtkCellRenderer
  - Using GtkListStore
  - Creating the Tree View
  - Renderers and Columns
  - Creating the GtkListStore
  - Using GtkTreeStore
  - Referencing Rows
  - Tree Paths
  - Tree Row References
  - Tree Iterators
  - Adding Rows and Handling Selections
  - Single Selections
  - Multiple Selections
  - Adding New Rows
  - Removing Multiple Rows
  - Handling Double-clicks
  - Editable Text Renderers
  - Cell Data Functions
  - Cell Renderers
  - Toggle Button Renderers
  - Pixbuf Renderers
  - Spin Button Renderers
  - Combo Box Renderers
  - Progress Bar Renderers
  - Keyboard Accelerator Renderers
- Menus and Toolbars
  - Pop-up Menus
  - Creating a Pop-up Menu
  - Pop-up Menu Callback Functions
  - Keyboard Accelerators
  - Status Bar Hints
  - The Status Bar Widget
  - Menu Item Information



- Menu Items
- Submenus
- Image Menu Items
- Check Menu Items
- Radio Menu Items
- Menu Bars
- Toolbars
- Toolbar Items
- Toggle Tool Buttons
- Radio Tool Buttons
- Menu Tool Buttons
- Dynamic Menu Creation
- Creating UI Files
- Loading UI Files
- Additional Action Types
- Placeholders
- Custom Stock Items
- Dynamic User Interfaces
  - User Interface Design
  - The Glade User Interface Builder
  - Widget Signals
  - Creating a Menu
  - Using Libglade
  - Loading a User Interface
  - Connecting Signals
- Additional GTK+ Widgets
  - Drawing Widgets
  - A Drawing Area Example
  - The Layout Widget
  - Printing Support
  - Print Operations
  - Beginning the Print Operation
  - Rendering Pages
  - Finalizing the Print Operation
  - Cairo Drawing Context
  - Drawing Paths
  - Rendering Options
  - Recent Files
  - Recent Chooser Menu
  - Adding Recent Files
  - Recent Chooser Dialog