Getting Started with GitHub

A Step-by-Step Guide for BANA 4373 / ECON 4370

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Why Are We Using GitHub?

For this course:

- Access lecture notebooks and data files
- Stay updated when materials are revised
- Learn professional data science workflows

For your career:

- Industry standard for code collaboration
- Portfolio to showcase your work to employers
- Required for many data science and analytics roles

Good news: For now, you only need to *download* materials. We'll learn to *upload* your own work later.

What We'll Cover

1. Create a GitHub account (5 minutes)
2. Install Git on your computer (5 minutes)
3. Install GitHub Desktop (optional but recommended) (5 minutes)
4. Clone the course repository (5 minutes)
5. Update materials with a single command (ongoing)

Total setup time: About 20 minutes

Note: Instructions are provided for both Windows and Mac.

Part 1: Create a GitHub Account

 https://github.com

Step 1.1: Go to GitHub.com

1. Open your web browser
2. Navigate to `https://github.com`
3. Click the **"Sign up"** button in the top right corner

Tip: Use your personal email (not your university email) so you keep access after graduation.

Step 1.2: Create Your Account

You'll be asked to provide:

1. **Email address** — Use an email you check regularly
2. **Password** — At least 15 characters, or 8 characters with a number and lowercase letter
3. **Username** — Choose wisely! This becomes part of your professional identity

Username tips:

- Keep it professional (e.g., `jsmith-analytics`, `jane-doe-econ`)
- Avoid numbers that look like birth years
- Make it easy to remember and share

Step 1.3: Verify and Complete Setup

1. Complete the CAPTCHA puzzle
2. Check your email for a verification code
3. Enter the code on GitHub
4. Answer the optional personalization questions (you can skip these)
5. Select the **Free** plan (all you need for this course)

Congratulations! Your GitHub account is ready.

Part 2: Install Git

The software that powers version control

What is Git vs. GitHub?

Git

- Software on your computer
- Tracks changes to files
- Works offline
- Free and open source

GitHub

- Website / cloud service
- Stores Git repositories online
- Enables collaboration
- Owned by Microsoft

Analogy: Git is like Microsoft Word's "Track Changes."
GitHub is like OneDrive/Google Drive for those tracked documents.

Step 2.1: Download Git

For Windows:

1. Go to `https://git-scm.com/download/win`
2. Download will start automatically
3. Run the installer (`Git-2.x.x-64-bit.exe`)

For Mac:

1. Open **Terminal** (search in Spotlight)
2. Type: `git --version`
3. If not installed, you'll be prompted to install Xcode Command Line Tools
4. Click **Install** when prompted

Step 2.2: Install Git (Windows)

Run the installer and use these settings:

- **Select Components:** Keep defaults, ensure "Git Bash Here" is checked
- **Default editor:** Select "Use Visual Studio Code" or "Use Notepad++" (not Vim!)
- **Initial branch name:** Select "Override" and type `main`
- **PATH environment:** Select "Git from the command line and also from 3rd-party software"
- **All other options:** Keep defaults, click Next

Click Install and wait for completion.

Step 2.3: Verify Git Installation

Windows:

1. Open **Command Prompt** (search "cmd") or **Git Bash**
2. Type: `git --version`
3. You should see: `git version 2.x.x`

Mac:

1. Open **Terminal**
2. Type: `git --version`
3. You should see: `git version 2.x.x`

✅ **Git is installed!**

Step 2.4: Configure Git (One-Time Setup)

Open Terminal (Mac) or Git Bash (Windows) and run these commands:

```
git config --global user.name "Your Name"
git config --global user.email "your.email@example.com"
```

Example:

```
git config --global user.name "Jane Smith"
git config --global user.email "jsmith@gmail.com"
```

Important: Use the same email you used for your GitHub account!

Part 3: Install GitHub Desktop (Recommended)

A visual interface for Git — no command line needed!

Why GitHub Desktop?

GitHub Desktop provides a graphical interface for Git operations.

Advantages:

- No need to memorize commands
- Visual display of changes
- Easier for beginners
- Built-in GitHub authentication

You can use either:

- **GitHub Desktop** (graphical — recommended for beginners)
- **Command line** (more powerful — we'll learn later)

This guide shows both methods.

Step 3.1: Download GitHub Desktop

1. Go to `https://desktop.github.com`
2. Click **Download for Windows** or **Download for macOS**
3. Run the installer
4. Open GitHub Desktop when installation completes

Step 3.2: Sign In to GitHub Desktop

1. When GitHub Desktop opens, click **“Sign in to GitHub.com”**
2. Your browser will open — sign in with your GitHub credentials
3. Click **“Authorize desktop”**
4. Return to GitHub Desktop
5. Confirm your Git configuration (name and email)
6. Click **Finish**

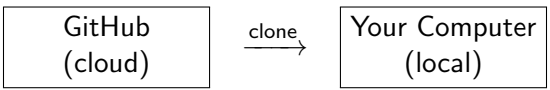
GitHub Desktop is ready!

Part 4: Clone the Course Repository

Download all course materials to your computer

What Does "Clone" Mean?

Cloning creates a complete copy of a repository on your computer.



After cloning, you have:

- All files from the repository
- Complete version history
- Ability to pull updates when I post new materials

Course Repository URL

Course Repository

`https://github.com/[instructor]/bana4373-sp26`

(The actual URL will be provided in class and on the syllabus)

Method A: Clone with GitHub Desktop

1. Open **GitHub Desktop**
2. Click **File** → **Clone Repository**
3. Select the **URL** tab
4. Paste the course repository URL
5. Choose where to save it:
   - Recommended: `Documents/BANA4373` or `Documents/GitHub`
6. Click **Clone**
7. Wait for download to complete

✅ **Done! The course files are now on your computer.**

Method B: Clone with Command Line

1. Open **Terminal** (Mac) or **Git Bash** (Windows)
2. Navigate to where you want to store the course:

```
cd Documents
```

3. Clone the repository:

```
git clone https://github.com/[instructor]/bana4373-sp26.git
```

4. Enter the new folder:

```
cd bana4373-sp26
```

✅ **Done!**

Method C: Download as ZIP (No Git Required)

If you're having trouble with Git, you can download files directly:

1. Go to the course repository on GitHub
2. Click the green **"Code"** button
3. Select **"Download ZIP"**
4. Extract the ZIP file to your desired location

Limitation: You'll need to re-download the entire ZIP whenever materials are updated. Cloning is better for ongoing updates.

Part 5: Pulling Updates

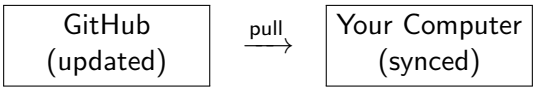
Get the latest materials with one click (or command)

When to Pull Updates

Pull downloads any changes from GitHub to your computer.

When should you pull?

- Before each class session
- When I announce new materials are posted
- If something seems missing or outdated



Pull with GitHub Desktop

1. Open **GitHub Desktop**
2. Make sure the course repository is selected (top left)
3. Click **“Fetch origin”** to check for updates
4. If updates are available, click **“Pull origin”**

Or even simpler:

- Just click **“Fetch origin”** — it will automatically pull if there are changes

Your files are now up to date!

Pull with Command Line

1. Open **Terminal** or **Git Bash**
2. Navigate to the course folder:

```
cd Documents/bana4373-sp26
```

3. Pull the latest updates:

```
git pull
```

You'll see either:

- `Already up to date.` — No new changes
- A list of updated files — New materials downloaded

Troubleshooting Common Issues

Issue: "Permission Denied" or Authentication Error

Problem: Git asks for username/password and then fails.

Solution: GitHub no longer accepts passwords. You need to:

1. Use **GitHub Desktop** (handles authentication automatically), OR
2. Set up a **Personal Access Token**:
   - Go to GitHub.com → Settings → Developer Settings
   - Click "Personal access tokens" → "Tokens (classic)"
   - Generate new token with "repo" scope
   - Use this token as your password

Recommendation: Just use GitHub Desktop — it's much easier!

Issue: "Not a Git Repository"

Problem: `fatal: not a git repository`

Cause: You're not in the right folder.

Solution:

```
# Check where you are
pwd

# Navigate to the course folder
cd Documents/bana4373-sp26

# Try again
git pull
```

Issue: Merge Conflicts

Problem: Git says there are "conflicts" when you pull.

Cause: You edited a file that I also updated.

Simple Solution:

1. Save your work somewhere else (copy to Desktop)
2. Delete the course folder
3. Clone the repository again
4. Copy your work back if needed

Better Practice: Don't edit files in the course repository. Copy notebooks to a separate "my-work" folder before modifying them.

Issue: "Command Not Found: git"

Problem: Terminal doesn't recognize the `git` command.

Cause: Git isn't installed or isn't in your PATH.

Solutions:

- **Windows:** Reinstall Git and ensure "Git from the command line" is selected
- **Windows:** Use "Git Bash" instead of Command Prompt
- **Mac:** Run `xcode-select --install` in Terminal
- **Both:** Restart your Terminal/Command Prompt after installing

Quick Reference Card

Task	Command / Action
Check Git version	`git --version`
Configure name	`git config --global user.name "Name"`
Configure email	`git config --global user.email "email"`
Clone repository	`git clone <url>`
Get updates	`git pull`
Check status	`git status`

Or use GitHub Desktop:

- Clone: File → Clone Repository
- Update: Click “Fetch origin” / “Pull origin”

Recommended Workflow for This Course

1. **Before each class:**
   - Open GitHub Desktop
   - Click "Fetch origin" to get any new materials
2. **When working on assignments:**
   - Copy the notebook to your own folder (outside the repo)
   - Work on your copy
   - Never edit files directly in the course repository
3. **For the midterm/final project:**
   - Create your own repository (we'll cover this later)
   - Submit via GitHub link

Getting Help

If you're stuck:

1. Check the troubleshooting slides in this presentation
2. Search your error message on Google/Stack Overflow
3. Ask a classmate
4. Come to office hours
5. Email me with a screenshot of the error

Useful resources:

- GitHub Docs: `https://docs.github.com`
- Git Cheat Sheet: `https://education.github.com/git-cheat-sheet-education.pdf`
- GitHub Desktop Docs: `https://docs.github.com/en/desktop`

You're All Set!

 Clone the course repo and you're ready to go.

Questions? Ask in class or during office hours.