

# Automation is here:

How Google Apps can be leveraged to automate tasks  
in library technology environments

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# Outline

Netspeed 2018

## Primary Apps

- Gmail
- Forms
- Sheets

## Intermediate Apps

- Analytics
- Scripts
- Sites

## Resources

# Introduction

When considering software solutions, include tools your library already uses:

- How might they be customized to meet the library's needs?
- Time spent customizing vs. time spent learning new software

# Google Apps

## What they are

- Cloud-based suite of office productivity applications
- Contain many of the same features as Microsoft Office products (e.g. email, calendar, documents, spreadsheets, etc.)

## Why they're useful

- Instant collaboration across distance
- Free for personal use!
  - Additional features (and cost) for organization-wide suite
- Auto-save progress

# Google Apps

## Drawbacks

- Cost for office suite (G Suite)
- Privacy concerns
- Security concerns
- Learning curve

# Primary Apps



# Gmail

## What it is

- Google's email service that can be accessed both through browsers and third-party applications

## Why it's useful

- Integrated into Google's other applications, such as Google Calendar
- Host video and text chats
- Syncs across multiple devices
- Add-ons from Google and third party developers allow further customization



# Email Templates

## What they are

- Add-on to Gmail that allows pre-written text to be loaded when composing emails
- Text can be saved, altered, loaded and deleted from the 'compose email' window

## Why they're useful

- More employees can answer common questions
- Pre-written answers saved in one place within Gmail





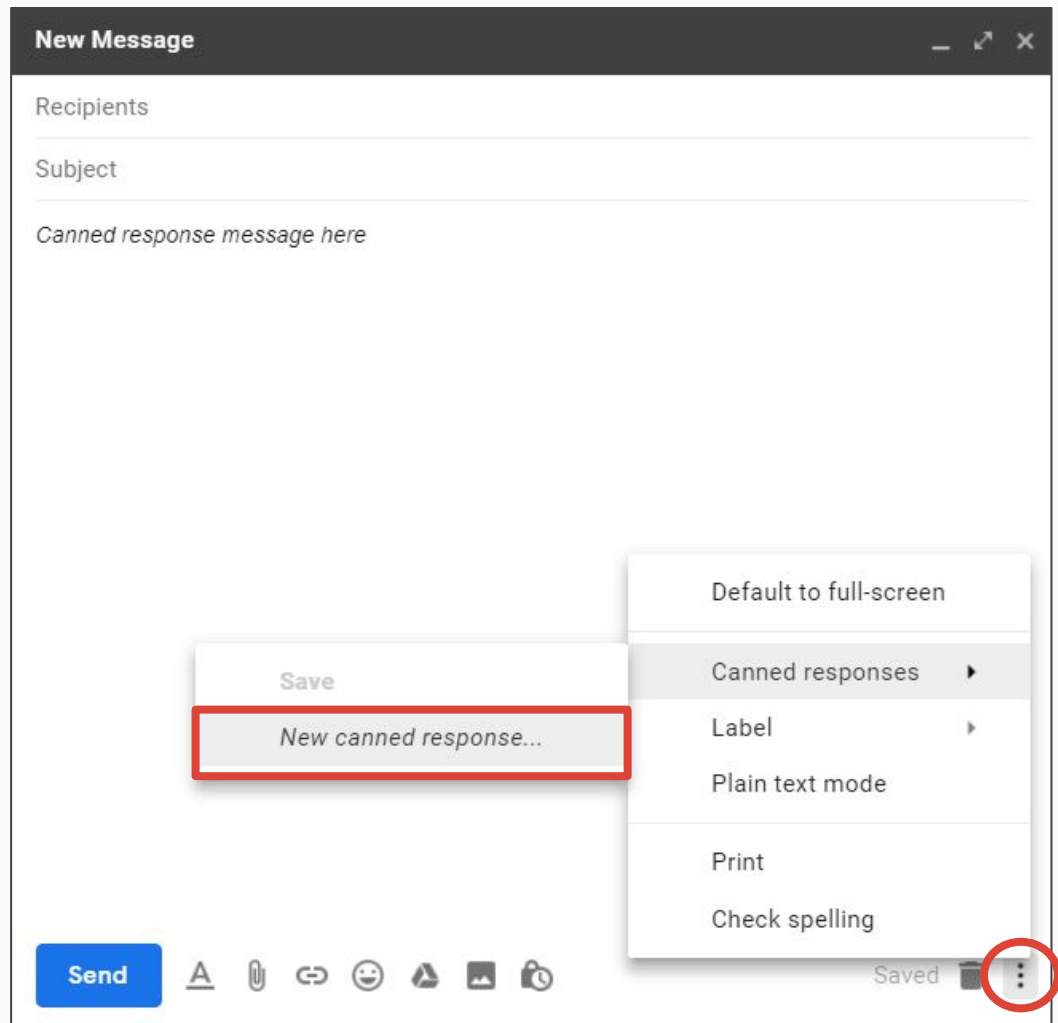
# Enable Email Templates

1. From your Gmail Inbox, click the gear icon
2. Select "Settings" from the drop-down menu
3. From the Settings menu, click "Advanced"
4. Enable **Canned Responses (Templates)**

The screenshot shows the Gmail Settings interface. At the top, the word "Settings" is displayed. Below it is a navigation bar with tabs: "General", "Labels", "Inbox", "Accounts and Import", "Filters and Blocked Addresses", "Forwarding and POP/IMAP", "Add-ons", "Chat", "Advanced", "Offline", and "Themes". The "Advanced" tab is highlighted with a red box. In the top right corner, a gear icon is circled in red. The main content area shows the "Auto-advance" section with a description and two radio buttons: "Enable" (selected) and "Disable". Below this is the "Canned Responses (Templates)" section with a description and two radio buttons: "Enable" (selected) and "Disable". The "Enable" radio button in the "Canned Responses (Templates)" section is highlighted with a red box.

# Create an Email Template

1. Compose a new email
2. Click the “More options” icon next to the trash bin (arrow in old Inbox, vertical dots in new Gmail)
3. Hover over “Canned responses”
4. Select “New canned response...”
5. Name the template

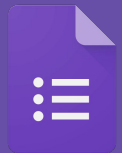


# Import an Email Template

1. Compose a new email
2. Click the “More options” icon next to the trash bin (arrow in old Inbox, vertical dots in new Gmail)
3. Hover over “Canned responses”
4. Select one of your saved responses from the “Insert” list



A screenshot of the Gmail 'Compose' screen. The 'New Message' header is visible at the top. The 'To', 'From', and 'Subject' fields are present. A red circle highlights the 'Insert' menu, which is open and shows a list of saved email templates. The 'Canned responses' option is highlighted with a red underline. A red circle also highlights the 'More options' icon (three vertical dots) in the bottom right corner of the compose area. The bottom of the screen shows the 'Send' button and various formatting icons.



# Google Forms

## What it is

- Web form that can be used for data entry, surveys, quizzes, or any other use that a web form might serve (e.g. contact form)

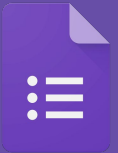
## Why it's useful

- Can be emailed, linked, and/or embedded in a web page
- Links to Google Sheets
- Reduces data entry errors
- Supports skip logic

# Google Forms

## Options

- 1 or multiple sections (i.e. pages)
- Can embed images and videos
- Variety of question types
- Response validation for open-ended question types
- Can require a response to submit
- Can limit to 1 response per person
  - Requires respondents to sign in




QUESTIONS    RESPONSES    11

## Reference Interactions

Demo form for Netspeed 2018

Date \*


Month, day, year 

Location \*

- On desk
- Phone
- Email
- Roving




QUESTIONS    RESPONSES    11

Question 

Option 1

Add option or [ADD "OTHER"](#)

Date \* 

Month, day, year

Location \*  On desk  Phone  Email

- Short answer
- Paragraph
- Multiple choice**
- Checkboxes
- Dropdown
- File upload
- Linear scale
- Multiple choice grid
- Checkbox grid
- Date
- Time



- 
- 
- 
- 
- 



QUESTIONS    RESPONSES

0 responses







Waiting for responses

- Get email notifications for new responses
- Select response destination
- Unlink form
-  Download responses (.csv)
-  Print all responses
- Delete all responses





### Send form ✕

Send via      

Email

To

Subject

Reference Interactions

Message

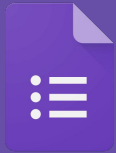
I've invited you to fill out a form:

Include form in email

[Add collaborators](#) CANCEL SEND



Carter, S. & Ambrosi, T. (2011). How to build a desk statistics tracker in less than an hour using Forms in Google Docs. *Computers in Libraries*, 31(8), 12-16.





# Google Sheets

## What it is

- Spreadsheet with options for added functionality
- Contains many of the same features as Microsoft Excel

## Why it's useful

- Functions reduce error
- Conditional formatting increases usability
- Macros reduce repetitive tasks
- Add-ons increase functionality
- Built-in Script editor



# Functions

## Task

- Add or subtract numerical data
- Add up qualitative data
- Add up data based on criteria
- Extract text from cell
- Replace text in a cell
- Return TRUE value of logical expression

## Function

=SUM()  
=COUNTA()  
=SUMIF() or =COUNTIF()  
=REGEXEXTRACT()  
=REGEXREPLACE()  
=IF()



- SUM
- AVERAGE
- COUNT
- MAX
- MIN
- All ▶
- Array ▶
- Database ▶
- Date ▶
- Engineering ▶
- Filter ▶
- Financial ▶
- Google ▶
- Info ▶
- Logical ▶
- Lookup ▶
- Math ▶
- Operator ▶
- Parser ▶
- Statistical ▶
- Text ▶
- Learn more





# Conditional Formatting

## Task

- Format a single cell
- Format all cells in a selected range
- Format row based on a cell in column B
- Format column based on a cell in row 2

## Formula

No formula needed (use built-in options)

No formula needed

= $\$B1$ =""

= $A\$2$ =""

Netspeed2018

File Edit View Insert Format Data Tools Form Add-ons Help Data Analysis Tools All changes saved in Drive

Number 10 B I U A

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

A B E F G H I J K

**B** Bold Ctrl+B  
*I* Italic Ctrl+I  
U Underline Ctrl+U  
~~S~~ Strikethrough Alt+Shift+5

Font size

Align

Merge cells

Text wrapping

Text rotation

Conditional formatting...

Alternating colors...

Clear formatting Ctrl+\

Conditional format rules

Single color Color scale

Apply to range

A1

Format cells if...

Custom formula is

Value or formula

Formatting style

Default

B I U S A

Done Cancel

Add another rule

Enhance conditional formatting using custom formula





# Macros

## What it is

- Method of letting you record, edit, and import specific UI interactions

## Why it's useful

- Does not require coding skills to use
- Allows users to complete common, repetitive UI interactions much faster





- Create a form
- Script editor
- Macros
  - Record macro**
  - Manage macros
  - Import
- Spelling
- Enable autocomplete
- Notification rules...
- Protect sheet...
- Activity dashboard...

- Plain Text Format Ctrl+Alt+Shift+1
- Sort by Clearance Ctrl+Alt+Shift+3
- Sort by Unique Searches Ctrl+Alt+Shift+2

Recording new macro... CANCEL **SAVE**

Use absolute references  
When applying macro use exact location as recorded

Use relative references  
When applying macro use active selection



# Google Sheets Macros

## Drawbacks

- Can only be used within Google Sheets
- Macros are bound to specific sheets
- Cannot be included in Apps Scripts Libraries
- Macros cannot be distributed using a Sheets add-on

# Intermediate Apps



# Google Analytics

## What it is

“Google Analytics is a widely used, free web analytics tool that collects, analyzes, and reports website traffic data.”

- Farney, T. & McHale, N. (2013)

## Why it's useful

Determine:

- WHAT content your users access
- From WHERE
- Using WHICH devices / browsers
- For HOW long

# Google Analytics

## Privacy

- Aggregates user data so that no individual user behaviour can be tracked
- Choose your data retention period
  - Minimum: 14 months
  - Maximum: never expire



# View Reports

- Real-time
- Audience
- Acquisition
- Behaviour
- Conversions

The screenshot displays the Google Analytics interface. At the top, it shows 'All accounts >' and 'All Web Site Data'. The left sidebar contains a search bar and navigation options: HOME, CUSTOMIZATION, Reports (highlighted with a red box), DISCOVER, and ADMIN. The 'Reports' section includes REAL-TIME, AUDIENCE, ACQUISITION, BEHAVIOR, and CONVERSIONS. The main content area shows the 'Google Analytics Home' dashboard with a summary table for Users, Sessions, Bounce Rate, and Session Duration, all showing zero values. Below this is a time series chart for the last 7 days, and a section titled 'How do you acquire users?' with a table for Traffic Channel, Source / Medium, and Referrals.

Analytics | All accounts > | All Web Site Data ▾

Search reports and help

HOME

CUSTOMIZATION

Reports

- REAL-TIME
- AUDIENCE
- ACQUISITION
- BEHAVIOR
- CONVERSIONS

DISCOVER

ADMIN

### Google Analytics Home

Users	Sessions	Bounce Rate	Session Duration
0	0	0	0

03 Oct 04 05 06 07 08 09

Last 7 days ▾ [AUDIENCE OVERVIEW](#)

### How do you acquire users?

Traffic Channel	Source / Medium	Referrals
-----------------	-----------------	-----------



Farney, T., & McHale, N. (2013). Maximizing Google Analytics: Six high-impact practices. *Library Technology Reports*, 49(4), 1-44.  
<http://dx.doi.org/10.5860/ltr.49n4>





# Google Analytics Add-On

## What it is

- Google Sheets add-on that links to your Google Analytics accounts

## Why it's useful

- Customized reports
- Automatic scheduling
- Data back-ups



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Document add-ons

Google Analytics ▶
 

- Create new report
- Run reports
- Schedule reports
- Help

Get add-ons...  
 Manage add-ons...

	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3											
4											
5											
6											
7											
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27											
28											

Create a new report

**1) Name your report**

Name

**2) Select a view**

Account

Property

View

**3) Choose configuration options**

Metrics

[Metrics Reference](#)

Dimensions

[Dimensions Reference](#)

Segments

[Segments Reference](#)

**Create Report** Cancel



fx Configuration Options

- Document add-ons
- Google Analytics ▶
  - Create new report
  - Run reports
  - Schedule reports
  - Help
- Get add-ons...
- Manage add-ons...

	A	B	E	F	G
1	<b>Configuration Options</b>	<b>Your Google Analytics</b>			
2	Report Name	Devices			
3	View ID	123456789			
4	Start Date	30daysAgo			
5	End Date	yesterday			
6	Metrics	ga:sessions			
7	Dimensions	ga:deviceCategory			
8	Order	-ga:sessions			
9	Filters				
10	Segments				
11	Limit	50			
12	Spreadsheet URL	<a href="https://docs.google.com/spreadsheets/d/1rH7lvb1jL6-ktqcEJnn_BQDktiBBujjXPAk48-FwoTU/edit#gid=573659255">https://docs.google.com/spreadsheets/d/1rH7lvb1jL6-ktqcEJnn_BQDktiBBujjXPAk48-FwoTU/edit#gid=573659255</a>			
13	Skip Report				

For help with this add-on: <https://developers.google.com/analytics/solutions/google-analytics-spreadsheet-add-on>



Netspeed2018 ☆ 🗑️

File Edit View Insert Format Data Tools Form Add-ons Help Data Analysis Tools Last edit was yesterday at 3:58 PM

100% \$ % .0\_ .00 123 Arial Document add-ons

Configuration Options

	A	B	E	F	G
1	Configuration Options	Your Google Analytics			
2	Report Name	Devices			
3	View ID	123456789			
4	Start Date	30days			
5	End Date	yesterd			
6	Metrics	ga:ses			
7	Dimensions	ga:devi			
8	Order	-ga:ses			
9	Filters				
10	Segments				
11	Limit	50			
12	Spreadsheet URL	<a href="https://adshee...">https://adshee... E_Jnn_E woTU/e</a>			
13	Skip Report				
18	For help with this add-on: <a href="https://developers.google.com/analytics/solutions/google-analytics-spreadsheet-add-on">https://developers.google.com/analytics/solutions/google-analytics-spreadsheet-add-on</a>				

Google Analytics

- Create new report
- Run reports
- Schedule reports
- Help

### Schedule Reports

Enable reports to run automatically.

Schedule reports to run **every month** on the **1st** between **4 a.m. - 5 a.m.**

**Save** **Cancel**

- every hour
- every day
- every week
- every month

18 19 20 21 22 23 24 25 26 27

Schedule hourly, daily, weekly, or monthly Google Analytics reports



# Google Apps Script

## What it is

“Google Apps Script is a JavaScript cloud scripting language that provides easy ways to automate tasks across Google products and third party services and build web applications”

<https://www.google.com/script/start/>

## Why it's useful

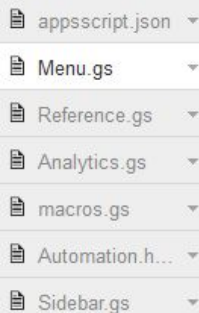
- Increased functionality to Google Apps
- Automate tasks
- Reduce errors
- Customization
- Easy to understand for new and intermediate coders



# Access Apps Script

The screenshot shows the Google Sheets interface for a spreadsheet named 'Netspeed2018'. The 'Tools' menu is open, and the 'Script editor' option is highlighted with a red box. Other menu items include 'Create a form', 'Macros', 'Spelling', 'Enable autocomplete', 'Notification rules...', 'Protect sheet...', and 'Activity dashboard...'. The spreadsheet grid shows columns A, B, and C, and rows 1 through 11.

The screenshot shows the Google Forms interface. The 'More options' menu is open, and the 'Script editor' option is highlighted with a red box. Other menu items include 'Undo', 'Make a copy', 'Move to trash', 'Get pre-filled link', 'Print', 'Add collaborators...', 'Add-ons...', and 'Preferences...'. The form title 'Questions' is partially visible.



Menu.gs x

```
1 //function onOpen set to run when spreadsheet is opened
2
3 function onOpen() {
4   var ui = SpreadsheetApp.getUi();
5
6   ui.createMenu('Data Analysis Tools') //creates a menu item in the spreadsheet
7
8   .addSubMenu(ui.createMenu('References') //creates a sub-menu
9
10  .addItem('Chart by Location', 'chartLocation')
11  .addItem('Chart by Category', 'chartCategory'))
12
13  .addSubMenu(ui.createMenu('Google Analytics') //another sub-menu
14
15  .addItem('Chart Devices', 'chartDevices'))
16
17  .addSubMenu(ui.createMenu('Sidebar')
18    .addItem('Show sidebar', 'showSidebar'))
19
20  .addToUi(); // adds menu to user interface
21 }
```





- appscript.json
- Menu.gs
- Reference.gs
- Analytics.gs
- macros.gs
- Automation
- Sidebar.gs

Menu.gs x

```
1 //function onOpen set to run when spreadsheet is opened
2
3 function onOpen() {
```

Current project's triggers ✕

Run

Events

<input type="checkbox"/> onOpen	From spreadsheet	On open	notifications
<hr/>			
From spreadsheet			
Time-driven			
From calendar			

[Add a new trigger](#)

Save

Cancel



- References ▶
- Google Analytics ▶
- Sidebar ▶ **Show sidebar**

	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
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26					
27					
28					

**Sidebar** [X]

---

**About Sidebars**

Add an HTML file to your Google Apps Script.

**Instructions**

Input instructions on how to use the spreadsheet in the HTML code.

Or link to a website:

[Automation is Here](#)





# Apps Script

## Drawbacks

- Requires coding knowledge
- Versioning of script is subject to changes by Google
  - These changes may break previously working code
- Maximum execution time is limited
- Not as functional as the most recent version of JavaScript





# Google Sites

## What it is

- Simple content management system (CMS)

## Why it's useful

- Create websites without coding
- Drag-and-drop interface
- Responsive design (i.e. mobile-friendly)
- Embed Google Apps
- Choose who can access / view / edit



# Resources

## Websites

### Google Apps Help

Gmail: <https://support.google.com/mail/>

Forms: <https://support.google.com/docs/topic/9055404>

Text box, Images, Embed, From Drive

Layouts

- Button
- Divider
- YouTube





Automation is Here

# Resources

## Websites

### Google Apps Help

Gmail: <https://support.google.com/mail/>

Forms: <https://support.google.com/docs/topic/9055404>



Text box



Images

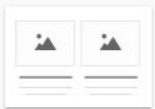
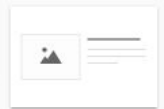


Embed



From Drive

### Layouts



Button



Divider



YouTube



# Google Sites

## Drawbacks

- Can only edit in Chrome or Firefox browser
- Cannot edit while on mobile devices
- Older versions of sites not supported
  - Users need to migrate Old sites to New Google Sites



## Wiki archived

[Copyright Policies Index](#)[Copyright Policies Template](#)[▶ Journals A - B](#)[▶ Journals C - D](#)[▶ Journals E - H](#)[▼ Journals I - L](#)[Imaginations: Journal of Cross-Cultural Image Studies](#)[International Journal of Nursing Student Scholarship \(IJNSS\)](#)[Language & Literacy](#)[Les Cahiers philosophiques de Strasbourg](#)[Logique et Analyse](#)[▶ Journals M - P](#)[▶ Journals Q - S](#)[▶ Journals T - Z](#)[▶ Publishers A - B](#)[▶ Publishers C - G](#)[▶ Publishers H - L](#)[Journals I - L >](#)

## Imaginations: Journal of Cross-Cultural Image Studies

**Publisher:** University of AlbertaLink to publisher website: [UAlberta eJournals](#)Link to journal website: [Imaginations](#)

Link to SHERPA/RoMEO record: NO RECORD

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# Key Takeaways

1. In the search for technology solutions, don't overlook the tools your library might already use



2. Managers should encourage library staff to experiment with and learn how tools can be customized

3. Don't be intimidated by unfamiliar  
(or even familiar) technology!

Questions?

# Thank You!

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# Resources

<https://sites.google.com/ualberta.ca/automation-is-here/home>

