



Scottish Graduate School of Social Science

Sgoil Cheumnaichean Saidheans
Sòisealta na h-Alba

Collecting Digital Data

The API Landscape: What's Out There?

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The API Landscape: What's Out There?

Categories of APIs



Government & Public Data

UK Parliament, ONS, data.gov.uk, US Census



International Organisations

World Bank, UN, OECD, Eurostat



Academic & Bibliometric

OpenAlex, Crossref, Semantic Scholar



Geospatial

OpenStreetMap, Nominatim, Google Maps



AI & LLMs

OpenAI, Anthropic, Google Gemini

Many of these APIs are **free** and require **no authentication** — ideal for research.

What Bills, debates, MPs, divisions — the full record of parliamentary activity

Auth None


Format JSON

Use case Political science, legislative studies, democratic representation

Example endpoint

```
members-api.parliament.uk/  
api/Members/Search?  
Name=Smith
```

Documentation

 <https://members-api.parliament.uk/index.html>



What Development indicators (GDP, poverty, education, health) for 200+ countries and territories

Auth None


Format JSON

Use case Comparative politics, development studies, economics

Example endpoint

```
api.worldbank.org/v2/  
country/GBR/indicator/  
NY.GDP.PCAP.CD?  
format=json
```

Documentation

 <https://datahelpdesk.worldbank.org/knowledgebase/articles/889392>



What LLM-as-a-service: text generation, classification, embeddings, summarisation

Auth API key (paid)

Format JSON

Use case Text annotation, data classification, synthetic data generation

Example endpoint

```
api.openai.com/v1/  
chat/completions
```

We'll discuss LLMs as coding assistants later today.

What UK official statistics — labour market, population, economy, housing, crime

Auth None

Format JSON / CSV

Use case Sociology, demography, policy studies

Example endpoint

```
api.beta.ons.gov.uk/v1/  
datasets
```

Documentation



```
https://developer.ons.gov.uk/
```



What Geospatial data, geocoding (address → coordinates), reverse geocoding (coordinates → address)

Auth None (rate limited: 1 req/sec)

Format JSON

Use case Spatial analysis, urban studies, geography

Example endpoint

```
nominatim.openstreetmap.org/  
search?q=Edinburgh&  
format=json
```

Documentation

 <https://nominatim.org/release-docs/latest/api/Overview/>

Finding More APIs

Curated directory






 **public-apis** on GitHub

A collective list of free APIs for development, research, and fun.

<https://github.com/public-apis/public-apis>

Other resources

- **RapidAPI Hub** — search and test APIs
- **ProgrammableWeb** — API directory
- **Google Dataset Search** — find open datasets

1.  **Documentation quality** — is it clear and up to date?
2.  **Rate limits** — can you collect data at a reasonable pace?
3.  **Terms of Service** — does the ToS allow research use?
4.  **Authentication** — is access free or paid?
5.  **Stability** — is the API actively maintained?

Practical 3: API Challenge

Choose one of three APIs and build a data collection pipeline:



UK Parliament API

Search for MPs, explore
bills and divisions



World Bank API

Compare development
indicators across
countries



ONS API

Retrieve UK official
statistics datasets

Open the **Practical 3** notebook in Google Colab
(Python or R — your choice!)