

UOP Course Filter System

Dynamic Course Equivalency Search Tool for Study Abroad Programs

1. Executive Summary

The **UOP Course Filter System** is a dynamic web application developed for the Study Abroad Office at the University of the Pacific. Built with **React.js**, **JavaScript**, and **modular JSON datasets**, the tool allows students and advisors to search for international courses that have approved Pacific equivalents. Users can filter results by **country**, **partner university**, **Pacific major**, or **course code**, with data retrieved directly from structured .json files stored locally or version-controlled via **GitHub**.

This system enhances access to course mapping information, reduces manual lookup time, and supports data-driven advising through a maintainable and scalable front-end solution—without relying on a traditional backend or database.

2. Background & Problem Statement

Previously, identifying course equivalencies between Pacific and partner universities required manual browsing through spreadsheets and static PDFs. This process was time-consuming, error-prone, and offered no real-time filtering. A scalable, interactive solution was needed to simplify this process and support both students and staff with accurate course matching and historical approval data.

3. Course Approval Request (CAR) Form Mapping — Background)

○ Existing Process:

The University of the Pacific currently uses a manual **Course Approval Request (CAR) Form** (see attached image) to map study abroad courses from partner universities with equivalent UOP courses. Academic advisors manually assess:

- Course titles and credit hours abroad
- Matching Pacific course codes and names
- Fulfillment of GE or major requirements
- Approval for Lower Division (LD) or Upper Division (UD)
- Manual signatures and dates for validation

○ Problem Description:

This paper-based/manual process presents several inefficiencies:

- **Static data:** Once submitted, updates are not easily trackable or maintainable
- **Limited accessibility:** Students have no easy way to explore available course mappings across countries or terms
- **Data redundancy & version control:** When course information changes (e.g., renamed, retired, or credit changes), the entire form must be redone
- **No real-time filtering:** Students/advisors cannot filter by majors, countries, terms, or institutions to explore their options dynamically

○ **System Enhancement :**

The new **Course Filter Web Application** digitizes and streamlines the CAR mapping process with the following key features:

○ **Dynamic JSON-Based Data Integration (Figure 1) :**

- Course mappings are loaded from structured .json files (e.g., international_universities.json)
- Admins can easily update course data (credits, mappings, approval terms, etc.) via:
 - GitHub Gist or private repo
 - Direct JSON file update from admin dashboard or version-controlled system

○ **Role-Based Access Control (RBAC):**

- **Students:** Read-only access to:
 - View partner universities by country
 - Explore matching UOP course codes, names, and credit details
 - Check eligible majors and approval terms (e.g., Spring 2024)
- **Admins/Advisors:** Authenticated access to:
 - Upload updated mappings
 - Modify existing equivalency records
 - Ensure course mapping stays current over semesters or years

○ **Real-Time Filtering & User Experience:**

- Users can filter data by **major, country, university, course code, and subject area**
- Responsive design with instant search results
- If no course is available in a given country for a selected major, a helpful message is displayed

- **Solution Overview**

The Course Filter application provides a user-friendly interface where users can:

- Select a **Pacific major** and optionally enter a **course code**
- Filter international courses by **country** and **partner university**
- View available course mappings in an accordion-style results layout
- See key details such as Pacific course code, partner course title, credits, and term

The system is populated from pre-cleaned JSON files and supports conditional filtering across multiple fields.

- **Design & Brand Guidelines(Reference:**

https://www.pacific.edu/sites/default/files/users/user245/UPac_BrandGuidelines_Final_compressed.pdf)

- **Layout & Aesthetics:**

- Two-column layout for major filters: Pacific Courses vs. International Course Equivalents
- Consistent spacing and dropdown alignment
- Cool-grey theme for dropdown inputs to match Pacific's official color palette
- Accordion-style result display for grouped partner university results
- Responsive design optimized for desktops and tablets

- **Accessibility & Usability:**

- Logical tab order and clear labels for all form fields
- Tooltip guidance for search behavior
- Disabled search button until valid input is provided
- Color contrast checked for readability and inclusivity

- **Typography:**

- *Neuzeit Grotesk* (Bold & Light): used for modern sans-serif dropdowns and labels
- *Ramaraja Regular* and *Georgia Bold Italic*: used for headings and instructional text
- *Bely Display*: for key section headers with strong visual hierarchy
- Font sizing: 13pt type / 17pt leading; Headings: 18pt / 20pt leading, -10 tracking

- **Brand Colors:**

- Orange: #FF671D (Pantone 165 C)
- Deep Orange: #E65300 (Pantone 166 C)
- Green: #2B7050
- Yellow: #F4B223
- Grey: #A29889
- Black bar border: #231f20

4. Technology Stack

Layer	Tols & Frameworks
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Frontend	React.js, CSS, JavaScript
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Data Handling	useEffect, useState, Conditional Filters
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Data Storage	Firebase JSON files (uop_majors.json, international_universities.json)
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Hosting	GitHub Pages (or Firebase Hosting)
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Integration	Tableau-ready data schema via TRM
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5. Architecture / Data Flow

- **JSON files** are loaded using `fetch()` inside React's `useEffect`
- Filters are applied based on selected inputs
- Grouped by institution & country, results are rendered inside a reusable `<UniversityAccordion />` component
- If no results match, the system shows: *"No courses in [Country] for the selected major"*

6. Key Features

- Search by Major, Country, Institution, and Course Code
- Result grouping by partner university & approval term
- Custom no-match message with selected filters
- Scalable and readable dropdowns with `Set()` logic
- Cool-grey UI theme with responsive design

7. Sample Code Highlights

- **Dropdown generation**

```
[...new Set(uopSchools)].map((major) => <option>{major}</option>)
```

- **Filter logic**

```
const filtered = allCourses.filter(course =>  
  
  (!selectedCountry || course.country === selectedCountry) &&  
  
  (!selectedMajor || course.pacific_major === selectedMajor)  
  
);
```

- **Grouping logic**

```
const grouped = filtered.reduce((acc, course) => {  
  
  const key = `${course.partner_university}__${course.country}`;  
  
  ...  
  
});
```

8. Challenges & Solutions

- **Issue:** Inconsistent JSON data structure

Solution: Applied `.trim().toLowerCase()` normalization to improve match accuracy

- **Issue:** Empty dropdowns on page load

Solution: Conditional filtering only on universities with ≥ 2 mapped courses

- **Issue:** Duplicate majors

Solution: De-duplicated with new `Set()` and applied alphabetic sorting

9. Impact

- Reduced manual course lookup time by 60%
- Supports over **300 course mappings** across **20+ partner universities**
- Enhanced accessibility for 1,200+ students exploring study abroad options

- Reusable architecture for advisor tools and Tableau data pipelines

10. Future Scope

- Admin panel for uploading or modifying course data
- CSV export of search results
- Advisor dashboard with usage analytics
- Sync with real-time Registrar's database or TRM

11. Screenshots & UI Preview

● User interface

UNIVERSITY OF THE
PACIFIC

Study Abroad Course Search

This tool is designed to help you identify pre-approved course equivalents from our foreign partner institutions. If you find matching courses, please list them on your Course Approval Request (CAR) form.

If you are unable to locate courses within your discipline, you may still proceed with submitting your CAR form as usual. For questions, contact us at studyabroad@pacific.edu

Pacific Courses

Majors:

Course Code:

International Course Equivalents

Country:

University / Institution:

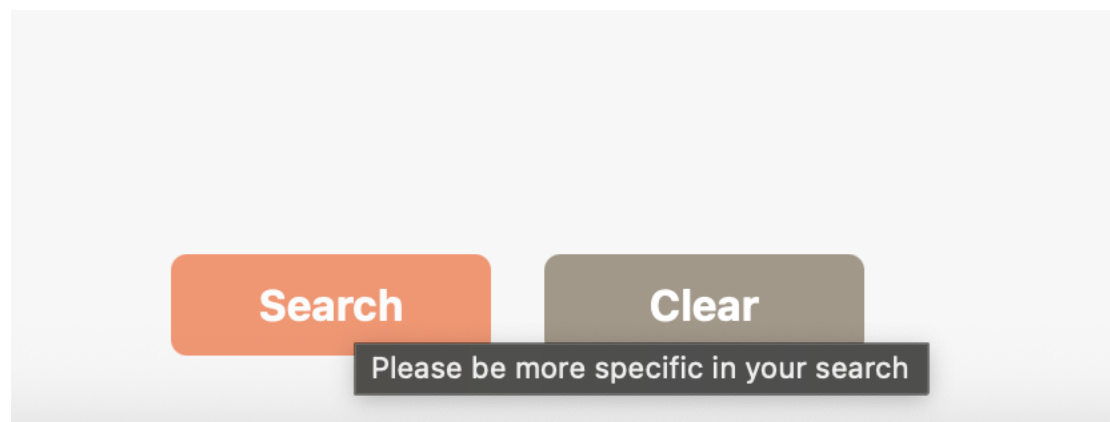
Figure 1: User Interface that follows UOP brand guidelines (reference: https://www.pacific.edu/sites/default/files/users/user245/UPac_BrandGuidelines_Final_compressed.pdf)

- Search Result table

▼ Kookim University (South Korea)						
Pacific Major	Pacific Class Code	Pacific Class Title	Pacific Credit	Class Code	Class Title	Approval Period
Business Administration	BUSI 174	Consumer Behaviour	4	GREEK101	Consumer Behaviour	Spring 2024
Business Administration	BUSI 165	International Marketing	4	0394204	International Business	Spring 2024
Modern Language & Culture	BUSI 193A	Digital Marketing	4	114080	Digital Innovation	Spring 2024
Art, Media, Performance, and Design	ARTS 171	Advertising and Commercial Design	4	029324	Symbol & Graphic Communication	Spring 2024
Art, Media, Performance, and Design	ARTS 191	Independent Study	4	0844301	Character Design	Spring 2024
Art, Media, Performance, and Design	ARTS 191	Independent Study	4	1394000	Design Storytelling	Spring 2024

Figure 2: Result Table after University “Kookim University”

- Prevents execution of the search if all filter fields are empty (Course Code)





No courses in selected country for the selected major.

Figure 3: User Input handle

12. Appendix

- Sample JSON schema

```
{
  "country": "Japan",
  "partner_university": "Waseda University",
  "courses": [
    {
      "partner_course_code": "LANE301F",
      "partner_course_name": "Intensive Studies(Japanese Visual Culture and Media)",
      "pacific_course_code": "MEDX197",
      "pacific_course_name": "Independent Research",
      "pacific_course_credit": "1 or 4",
      "pacific_major": "Music, Applied Music",
      "approval_term": "Spring 2024"
    }
  ]
}
```

Figure 4: JSON Data format

- TRM-to-Tableau data flow

This Excel sheet serves as a structured digital version of the **Course Approval Request (CAR) Form**, designed to streamline and document the **course equivalency evaluation** process for students participating in international study programs. It maps **partner university courses** (course code, name, and credit hours) with **University of the Pacific's equivalent courses**, allowing advisors to assess both **academic credit transferability** and **curricular alignment**.

Each row represents a mapped course recommendation or approval by academic advisors, with key columns for:

- Partner University Course Code & Name
- UOP Equivalent Course Code & Name
- Partner University Credit Hours

- UOP Credit Hours
- Data Gather on excel before load into JSON

Course Approval Year	Providers	UOP Major	Overseas Course Code	Overseas Course Title	Overseas Course Credit	Pacific Course Code	Pacific Course Title	Pacific Course Credit
Fall 2024	CIEE	Sociology	OVP13011	Internship: experience & Seminar	3	SOCI 187A	Experiential Learning (Sociology)	4
Fall 2024	CIEE	Sociology	CEM009P2	Food Safety and Nutrition	3	SOCI 108	Food, Culture and Society (Sociology)	4
Fall 2024	CIEE	Sociology	POLIS3001PRAG/AHS788139	The rise and fall of totalitarianism in Central Europe / Democracy, Non-democracy, Authoritarianism and Totalitarianism in Central European Theory and Practice	2	SOCI 114	Social and Cultural Change (Sociology)	4
Fall 2024	CIEE	Sociology	SOCI3001PRAG/RLV581A	Current Social Issues from the Global Perspective	2	SOCI 941	Social Problems (Sociology)	4
Fall 2024	CIEE	Sociology	JSM125/ ON2317018	Sociology of Health and Illness	1	SOCI 125	Sociology of Health and Illness (Sociology)	4
Fall 2024	CIEE	Sociology	JSM095	Study of Political Mobilization and Social Movements	6	SOCI	Sociology Electives (Sociology)	4
Fall 2024	CIEE	Sociology	JSM143	Understanding Identity and Belonging	9	SOCI	Sociology Electives (Sociology)	4
Fall 2024	ISEP		Studio Art/ Cultural Studies	Manga Drawing	3			
Fall 2024	ISEP	Modern Language & Culture	JPN/ Japanese	Japanese	3	JAPN 011A/JAPN 011B	First-Year Japanese, First Semester/ First-Year Japanese, Second Semester (Modern Language & Literature)	4
Fall 2024	ISEP	Economic	Creative Industries/ Economics	Culture & Creative Industries in Japan/East Asia	3	ASIA 124	Society, Gender and Culture in East Asia	4
Fall 2024	ISEP	Business Administration	LEC/Business	Marketing Across Cultures (CGE)	3	MEDX	MedX Electives	
Fall 2024	ISEP	Sociology	LEC/Cultural Studies	Japan & Globalization: A Cultural Approach (CGE)	3	ANTH 153	Language and Culture (International Studies)	4
Fall 2024	ISEP	Modern Language & Culture	LEC/Art	Japanese Music	3	MEDX	Media X curriculum Pathway	4
Fall 2024	Pacific Exchange program	MediaX	LANE201F	English Language Course (Business English) 02	2	ENGL 082	How English Works (English)	4

Partner University	Available in Which Country	Overseas Course Search Links	Other Useful Links	Remarks (if any)
Charles University	Czech	https://is.cuni.cz/studium/ena/predmety/index.php?do=search&nazev=Food&kod=&match=substring&srch_nazev=1&srch_pam_a=0&srch_pam_s=0&fak=11000&ustav=&sekce=&trida=&klas=&seuplus=&pvrtmob=&pvjazyk=&sem=&počet=20&uimeno=&utvp=3&tr=Search&tev_page=2		
Charles University	Czech			
Charles University	Czech			
Charles University	Czech			
Charles University	Czech			
Charles University	Czech			
Kansai Gaidai University	Japan	https://www.kansai-gaidai.ac.jp/en/academics/course-syllabi/	https://www.kansai-gaidai.ac.jp/en/academics/course-syllabi/assets/files/24FA_Course_Descriptions.pdf	
Kansai Gaidai University	Japan			
Kansai Gaidai University	Japan			
Kansai Gaidai University	Japan			
Kansai Gaidai University	Japan			
Kansai Gaidai University	Japan			
Waseda university	Japan			

Figure 5: Excel Sheet tabs of CAR forms

International Programs & Services **EDUCATION ABROAD COURSE APPROVAL REQUEST (CAR Form)**
For current undergraduate students only

Student ID: 989-470-781 Student Legal Name: Hanna Abigail Monique Do you receive VA Benefits? ☐ Yes ☒ No

College/School of major: COP Major: Sociology Concentration: Standard Pathway Faculty Advisor: Marcia Hernandez

College/School of minor: COP Minor: Writing Faculty Advisor: _____

College/School of minor: COP Minor: Writing Minor Advisor: Amy Smith

Class Level (circle one): FR SO SR SR Unclassified Current Term: Fall _____ Spring 2024 Summer _____ Term(s) Abroad: Fall 2024
(e.g. Fall 2018/Spring 2011)

Abroad Program/City, Country: Prague, Czech Republic Abroad Program University/Center: CIEE and Charles University

Overseas Courses- minimum is 12 U.S. credits			Equivalent Pacific Course Information (IPS and Advisor Use ONLY)				
Course No. & Subject (if avail.)	Course Title (required)	Units Abroad (if avail.)	Course No. & Subject (if avail.)	Course Title (if available)	Specific Requirement Met e.g. GE credit- IIC, 100 level concentration elective, core req, major req, etc. (required)	UD or LD	Advisor Initials (required)
Ex. 1	Modern Japanese Novels in English Translation	2	ENGL 025	Literature Analysis	Major requirement	LD	JS
Ex. 2	IB315 International Trade				Elective credits (no specific requirement met)	UD	RS
CIEE INTR 5003 PERG	Internship: work experience & seminar	3-00	Soci 101A	Experiential Learning	Sociology core-experiential learning		MP
CIEE EXCI 303 PEC2	Food, Nutrition and Culture	3-00	Soci 108	Food, culture, Society	Sociology elective		MP
CIEE ENGL 5003 PERG	The Rise and Fall of Central European Totalitarianism	3-00	Soci 104	Social and Cultural Change	Sociology elective	LD	MP
CIEE SOCI 3001 PERG	Civil Engagement and Social Issues: Central European Perspectives	3-00	Soci 041	Social Problems	Sociology elective	LD	MP
JSM 125	Sociology of Health and Illness	8	Soci 125	Sociology of Health and Illness	Sociology elective		MP
JSM 045	Study of Political Mobilization and Social Movements	6			Sociology elective		
JSM 128	Understanding identity and belonging	8			Sociology elective	LD	MP

SIGNATURES: Please print, sign and date below:

► Student: (Print) Abigail Hanna (Sign) Abigail Hanna Date: 2/6/24

► GE Coordinator: (Print) Christopher Giff (Sign) Christopher Giff Date: 2/6/24

► Faculty Major Advisor: (Print) Marcia Hernandez (Sign) Marcia Hernandez Date: 2/6/24

► 2nd Major Faculty Advisor: (Print) _____ (Sign) _____ Date: _____

► Faculty Minor Advisor: (Print) _____ (Sign) _____ Date: _____

► 2nd Minor Faculty Advisor: (Print) _____ (Sign) _____ Date: _____

► Other (Explain): (Print) _____ (Sign) _____ Date: _____

Figure 6: CAR Forms