

## 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](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
Frontend	React.js, CSS, JavaScript
Data Handling	useEffect, useState, Conditional Filters
Data Storage	Firebase JSON files (uop_majors.json, international_universities.json)
Hosting	GitHub Pages (or Firebase Hosting)
Integration	Tableau-ready data schema via TRM

#### 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

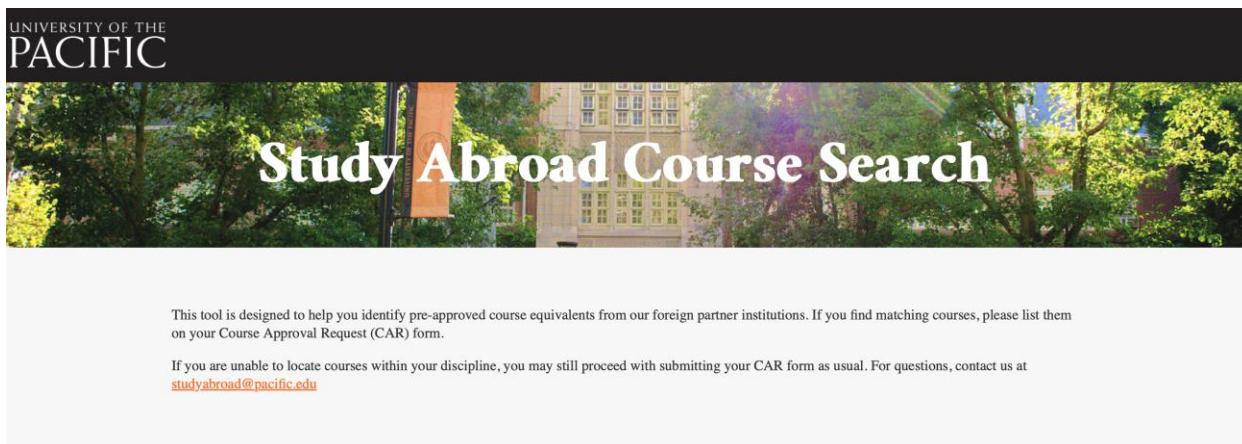
- Reusable architecture for advisor tools and Tableau data pipelines

## 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



The screenshot shows the search interface for "Pacific Courses". It is divided into two main sections: "Pacific Courses" on the left and "International Course Equivalents" on the right. The "Pacific Courses" section contains fields for "Majors" (a dropdown menu), "Course Code" (a text input field with placeholder "e.g., HIST 120"), and "University / Institution" (a dropdown menu currently set to "Kookim University"). The "International Course Equivalents" section contains a "Country" dropdown menu. At the bottom of the interface are two buttons: a red "Search" button and a grey "Clear" button.

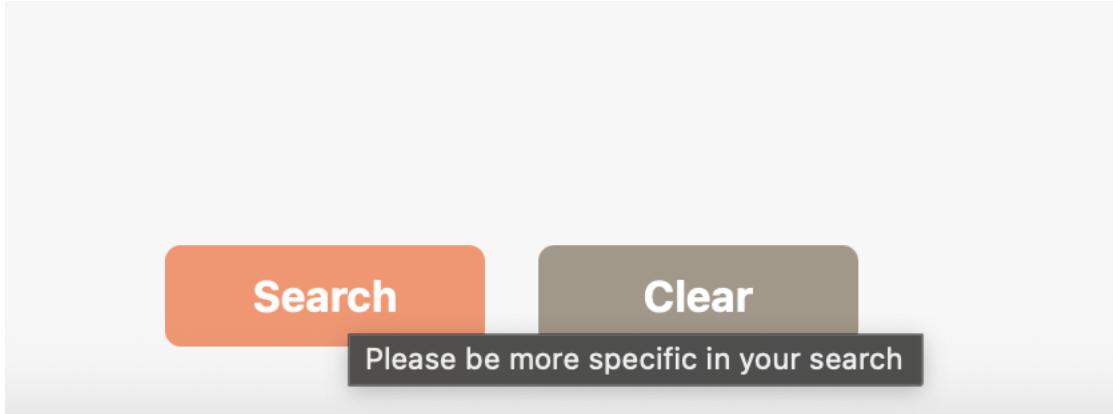
Figure 1: User Interface that follows UOP brand guidelines (reference: [https://www.pacific.edu/sites/default/files/users/user245/UPac\\_BrandGuidelines\\_Final\\_compressed.pdf](https://www.pacific.edu/sites/default/files/users/user245/UPac_BrandGuidelines_Final_compressed.pdf))

- Search Result table

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

Courses Approved 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	CEMO05P2	Food Safety and Nutrition	3	SOCI 108	Food, Culture and Society (Sociology)	4
Fall 2024	CIEE	Sociology	POLIS3001PRAG/AH5788139	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	SOC10001PRAG/JUV581A	Current Social Issues from the Global Perspective	2	SOCI 041	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	Economics	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 Basics	3	MEDX	MEDX Curriculum Pathway	4
Fall 2024	Pacific Exchange program	MediaX	LANE201F	English Language Course(Business English)-02	2	ENGL 082	New English Works(English)	4

Partner University	Available in Which Country	Overseas Course Search Links	Other Useful Links	Remarks (if any)
Charles University	Czech	<a href="https://is.cuni.cz/studium/eng/predmety/index.php?do=search&amp;nazev=Food&amp;kod=&amp;match=substring&amp;nazev=1&amp;search_param_a=0&amp;search_param_s=0&amp;rak=11000&amp;ustav=Asekce--&amp;rida=&amp;klas=&amp;ab=dejplus&amp;prvkrmb=&amp;ovyjazyk=Asem&amp;počet=20&amp;umeno=&amp;typ=3&amp;b=Search&amp;stev_page=2">https://is.cuni.cz/studium/eng/predmety/index.php?do=search&amp;nazev=Food&amp;kod=&amp;match=substring&amp;nazev=1&amp;search_param_a=0&amp;search_param_s=0&amp;rak=11000&amp;ustav=Asekce--&amp;rida=&amp;klass=&amp;ab=dejplus&amp;prvkrmb=&amp;ovyjazyk=Asem&amp;počet=20&amp;umeno=&amp;typ=3&amp;b=Search&amp;stev_page=2</a>		
Charles University	Czech			
Charles University	Czech			
Charles University	Czech			
Charles University	Czech			
Charles University	Czech			
Kansai Gaidai University	Japan	<a href="https://www.kansaiigaidai.ac.jp/asp/academics/course-syllabi/">https://www.kansaiigaidai.ac.jp/asp/academics/course-syllabi/</a>	<a href="https://www.kansaiigaidai.ac.jp/asp/academics/course-syllabi/assets/file/24FA_Course_Descriptions.pdf">https://www.kansaiigaidai.ac.jp/asp/academics/course-syllabi/assets/file/24FA_Course_Descriptions.pdf</a>	
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



**EDUCATION ABROAD COURSE APPROVAL REQUEST (CAR Form)**  
For current undergraduate students only

Student ID: 989-470-791 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: Maria Hernandez  
 College/School of major: \_\_\_\_\_ Major: \_\_\_\_\_ Concentration: \_\_\_\_\_ Faculty Advisor: \_\_\_\_\_  
 College/School of minor: COP Minor: Writing Minor Advisor: Amy Smith  
 Class Level (circle one): FR SO  SR Unclassified Current Term: Fall Year Spring 2024 Summer Year Term(s) Abroad: Fall 2024  
(e.g. Fall 2010/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 credits, HC, 100 level concentration elective, core req, major req, etc. (required)	UD or LD	Advisor Initials (required)
Ex. 1:	<u>Modern Japanese Novels in English Translation</u>	2	<u>ENGL 025</u>	<u>Literature Analysis</u>	<u>Major requirement</u>	LD	JS
Ex. 2:	<u>IB315</u> <u>International Trade</u>				<u>Elective credit (no specific requirement met)</u>	UD	RS
CIEE	<u>INTERNSHIP</u> <u>Work experience seminar</u>	3.00	<u>Soci 181A</u>	<u>Experiential Learning</u>	<u>Sociology core- experiential learning</u>	MP	
CIEE	<u>PSYCHOPOL</u> <u>Food, Nutrition and Culture</u>	3.00	<u>Soci 108</u>	<u>Food, culture, Society</u>	<u>Sociology elective</u>	MP	
CIEE	<u>POL6001PEAS</u> <u>The Rise and Fall of Central European Totalitarianism</u>	3.00	<u>Soci 114</u>	<u>Social and Cultural change</u>	<u>Sociology elective</u>	UD	MS
CIEE	<u>SOC13001PEAS</u> <u>Civil engagement and social issues: Central European perspectives</u>	3.00	<u>Soci 041</u>	<u>Social Problems</u>	<u>Sociology elective</u>	UD	CJ
JSM125	<u>Sociology of Health and illness</u>	8	<u>Soci 125</u>	<u>Sociology of Health and illness</u>	<u>Sociology elective</u>	MP	
JSM095	<u>Study of political mobilization and social movements</u>	6			<u>Sociology elective</u>		
JSM128	<u>Understanding identity and belonging</u>	8			<u>Sociology elective</u>	UD	KJ

**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) Maria Hernandez (Sign) Maria Hernandez Date: 2/6/24
- 2<sup>nd</sup> Major Faculty Advisor: (Print) \_\_\_\_\_ (Sign) \_\_\_\_\_ Date: \_\_\_\_\_
- Faculty Minor Advisor: (Print) \_\_\_\_\_ (Sign) \_\_\_\_\_ Date: \_\_\_\_\_
- 2<sup>nd</sup> Minor Faculty Advisor: (Print) \_\_\_\_\_ (Sign) \_\_\_\_\_ Date: \_\_\_\_\_
- Other (Explain): (Print) \_\_\_\_\_ (Sign) \_\_\_\_\_ Date: \_\_\_\_\_

**Figure 6: CAR Forms**