

**A Study on the Mainstream of Real Estate
Education with Core Term Analysis
-Focusing on Undergraduate Education-**

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A dissertation

**Submitted to The Graduate School of Real Estate Sciences,
Meikai University, in Partial Fulfillment of The Requirements
for The Degree of Doctor of Philosophy
Graduate School of Real Estate Sciences
Meikai University**

March 2020

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ABSTRACT

Today, globalization is proceeding in all fields with remarkable advances in information and communication technology. In recent years, the globalization trend has expanded not only in the fields of finance, investment, and real estate development in the business environment area, but also in the fields of education and culture in the knowledge industry area.

In order to evolve in accordance with a new era, it is more important than ever to educate real estate professionals via a well-designed curriculum that responds to the demands of a new age. Since 2000, university-level real estate education programs have been a topic of discussion in a global context.

These days, the globalization of real estate education is being led by The Royal Charter of the Royal Institution of Chartered Surveyors (RICS) in the UK and The Association to Advance Collegiate Schools of Business - International (AACSB-International) in the US. In this perspective, the study on real estate education should start with reviewing the historical developments and current streams of the real estate educations of the UK and US.

Due to reasons like these, the research objectives of this study are as follows.

- The first, clarifying the characteristics of real estate education in the UK and US through the review of the literatures on historical developments.
- The second, finding out the mainstream of current global age and picking up the Body of Knowledge (BOK) of real estate education through analyzing the current subject titles of real estate departments accredited by the RICS and AACSB-International. These outputs will give some clues for designing and improving the real estate education in Japan.
- Last, identifying Japan's specificities in real estate education through core term comparison based on proximity analysis among the UK, the US and Japan as one example of eclectic model countries.

To achieve these objectives, we proceeded with this study as follow.

- First, via the review of the literatures on historical developments, we made hypotheses about the characteristics of real estate education in the UK and US.
- Second, via the analysis of the terms used in the current subject titles of real estate departments accredited by the RICS and AACSB-International, we verified the hypotheses made in the before step. For the analysis, the titles of 250 and 189 Mandatory Subjects for graduation were collected from the websites of 14 real estate departments in the UK and 22 real estate departments in the US universities. And terms were extracted from the titles of mandatory subjects by using text mining techniques. After the Term Frequency (TF) and the Term Proportion (TP) of each term were calculated, the terms were grouped, counted and arranged by TF and TP order.
- Third, by using the core common terms chosen from the terms arranged by TF and TP in the before step, we found out the mainstream of current global age and picked up the Body of Knowledge (BOK) of real estate education. The definition of core common terms are as high frequent terms extensively appeared in the subject titles of the UK and US.
- Last, via core term comparison among the UK, the US and Japan by using proximity analysis, we identified Japan's specificities of real estate education.

The study results are summarized as follows.

- First, we clarified the characteristics of real estate education in the UK and US via the hypotheses made by the review of the literatures on historical developments and the hypotheses verification by the terms extracted from the current subject titles of real estate departments accredited by the RICS in the case of UK and AACSB-International in the case of US.

The characteristics clarified in this study are summarized like as belows.

『In case of the real estate education of the UK, the main-characteristics can be said to have been practiced with center on the physical aspects having roots in surveyor's training for lords' estate management. But, recent years, "Finance and Investment approach of the US" seems to be penetrating the education of the UK.』

『“In case of the real estate education of the US, the main-characteristics can be said to have been practiced with focus on finance and investment in the business environment based on the free transfer of land ownership dating to before independence. And, “Basic knowledge education related to real estate at the liberal art level is also placed a lot of value on, which have aimed developing generalists who have a foundation at real estate fields.”』

- Second, we found out the mainstream of current real estate education.

The mainstreams found out in this study are summarized like as below.

『Now is “the age of Management” after “the age of Development” has passed and “Finance” and “Investment” are key terms of recent real estate education.』

- Third, we also picked out the Body of Knowledge (BOK) of current real estate education.

The BOK picked out in this study is summarized like as below.

『The Body of Knowledge (BOK) of current real estate education is “Management”, “Finance,” “Law,” “Development”, “Investment”, “Appraisal“, “Principles”, and “Business”.』

- Fourth, we identified the specificities of the real estate education of Japan among the UK, the US and Japan. The specificity identified in this study is summarized like as below.

The Proximity of Japan to the US is highest among the UK, the US and Japan. This can be interpreted as the context of the US approach has been affecting the Japanese real estate education curriculum.

『The real estate education of Japan is more oriented toward the f the US than the UK.』

- Finally, although there was no quantitative analysis in this research, the subjects related to the terms of “History” and “Ethical” should be considered more important, especially considering the current era of global financial crises and complex financial services derived from real estate. In addition, subjects focusing on entrepreneurship and negotiation, as well as operational abilities for use in construction projects, should be emphasized in the future.

However, this study has some limitations.

As a first limitation of this study, the mainstream and the BOK of real estate education were extracted

with the core terms of the curriculum required in the real estate departments, which are limited to the departments accredited by the RICS and AACSB. As future work, it is expected that the subjects and core terms collected over a wide range of educational institutions will be able to extract a widely acceptable mainstream and BOK of real estate field.

Another limitation of this study, we classified words under the assumption that same term, which is the basis of classification, always has the same meaning. However, this method has limitations that the meaning of each word may have different nuances or be interpreted in different meaning depending on the context of the connected terms or the country. In future work, we hope to improve these limitations by finding better methods.

One more limitation of this study, the term-based analysis proposed in this study has the superiority in the analysis of education contents but did not provide any ideas about “How is it taught in the class?”. “How it is taught in the class” is also an important topic. In future work, we also hope to improve these limitations by expanding this study.

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Chapter 1. INTRODUCTION

1.1 Background

Providing new solutions and technologies to real estate problems, real estate science has evolved to solve complex real estate problems that arise between people and real estate. Today, globalization is proceeding in all fields with remarkable advances in information and communication technology. In recent years, the globalization trend has expanded not only in the fields of finance, investment, and real estate development in the business environment area, but also in the fields of education and culture in the knowledge industry area.

The Bologna Process¹ and the Erasmus program² as the representative examples in the field of higher education and globalization in the education sector, are now in progress. In order to evolve in accordance with a new era, it is more important than ever to educate real estate professionals via a well-designed curriculum that responds to the demands of a new age.

In real estate higher education fields, Since 2000, university-level real estate education programs have been topics of discussion in a global context. Schulte et al. [1,2] classified the real estate education programs of 39 countries into three categories: “surveying approach” in the United Kingdom (UK), “investment and finance approach” in the United States (US), and “interdisciplinary approach” in European countries, except the UK.

Yu [3] at the National University of Singapore expanded the scope of the discussions to worldwide coverage and classified real estate educations into the UK model, the US model, and an eclectic model which includes Asian and African countries.

¹ A set of ministerial agreements among 48 the European countries to enhance comparability in the standards and quality of higher-education qualifications. In 1999, the process begun with the Bologna declaration, which was signed by educational ministers from 29 European countries, aiming at building The European Higher Education Area(EHEA)

² An European union (EU) exchange student programme that has been in existence since 1987.

Here, “interdisciplinary approach” mentioned in Schulte et al. [1,2] or “eclectic model” mentioned in Yu [3] refers to the model of real estate education in which the UK and US education models are modified appropriately according to the educational needs of the local real estate industry.

Table 1 categorizes 28 countries which have university level real estate programs among 39 countries in Schulte et al. [1] according to the classification scheme of Yu [3]. The 28 countries were categorized according to their current education content. The eclectic model includes not only a country with a similar nature to the UK and the US from its inception but also some countries that initially adopted the UK model but later modified it to the US model with the increasing number of professors earning degrees in the United States. Table 1 shows that most countries currently are classified as eclectic models, which means that most countries have been influenced by the real estate education of the UK and the US, which has historically led real estate education. In this regard, the UK and US still take influential positions.

Today, the globalization of real estate education is also being led by the Royal Charter of the Royal Institution of Chartered Surveyors (RICS) in the UK and the Association to Advance Collegiate Schools of Business - International (AACSB-International) in the US. In this perspective, research on real estate education should start with reviewing the historical developments and curriculums of the real estate educations in the UK and US.

In other words, the analysis on contents of real estate education accredited by RICS and AACSB-International can provide an insight into the mainstream of globalization of real estate. In addition, through the analysis on the contents of the real estate education, we would like to get some clues about the entity of the Body of Knowledge (BOK), which has long been discussed in the real estate domain.

Although the definition of BOK can be defined in various ways depending on the field, generally BOK is a term used to represent the complete set of concepts, terms and activities that make up a professional domain, as defined by the relevant professional association. Previously many studies (The BOK session at

the annual ARES meeting in 1992 (Epley,1991 [4]) sought to find the BOK of the real estate field. In this study, we attempted to find out the BOK which is inherent in the curriculum by examining and analyzing the subjects currently accredited by RICS and AACSB-International using the Revealed Preference method.

Table 1. Real estate education programs in 28 countries classified by the scheme of Yu (2001)

Eclectic Model		●Taiwan 1930	●Canada 1958 ●Nigeria1957 ●Kenya 1956	●Singapore 1968 ●S. Africa1969 ●Malaysia1967 ●Sweden1965	●Austria1989 ●Korea1970 ●Greece 1980E ●Australia 1980E ●N.Z1980s	●Japan1992 ●Bulgaria1992 ●Lithuania1991 ●Finland1990 ●Spain1990 ●France1990mid ●Germany1990 ●Netherland1990	●Denmark2000 ●Russia2000 ●Belgium1997 ●Estonia1996 ●Latvia1995 ●Belarus1995
	US Model	Wisconsin university 1892	●Wharton school 1905, New York Univ. 1905 #AACSB (The Association to Advance Collegiate Schools of Business) 1916	#AREUEA (The American Real Estate and Urban Economics Association) 1964	#ARES (The American Real Estate Society) 1985	#IRES (The International Real Estate Society) 1992	
UK Model	#IS (Institution of Surveyors) 1868	●The College of Estate Management (CEM)1918, Cambridge1919		#RICS (The Royal Institution of Chartered Surveyors) 1970			Note: # indicates associations.
t = years	1800S	1900S	1950S	1960S	1980S	1990S ~ 2000S	

Despite the fact that most countries are classified as eclectic models as shown in Table 1, the contents and characteristics of eclectic models have not been sufficiently studied. In this context, this paper attempts to find out the characteristics of Japanese real estate education as an eclectic model through comparison with the UK and US models. In other words, through the term analysis of the subject titles of the real estate department established in Japan, the UK and the US, some features of real estate education in Japan can be expected to be identified.

1.2 Research Objectives

Today, educational contents at higher education institutions have been expanded to meet the complexity and advancement of the real estate industry market, and the related academic scope has been expanded and the analytical aspects are also being developed to satisfy the academic level required in the university education.

However, many research papers (K-W.Shulte et al.(2002,2005)[1,2] and Yu, Shi-Ming(2001)[3]) have pointed the problems in current real estate education. These issues include ambiguity in educational goals and scope, a lack of systematic education systems, applicant reductions, and student quality declines.

In association with solving these issues, it is necessary to discuss whether education responds appropriately to the social needs of real estate professionals, and to examine the university curriculum considering the rapid changes in socioeconomic global environment surrounding real estate. In order to evolve in accordance with a new age, it is more important than ever to educate real estate professionals via a well-designed curriculum. In this regard, this study aims to suggest the direction of improving the real estate education in Japan by reviewing and analyzing the education of the real estate departments of the UK and US universities.

The following three objectives can be considered to tackle the issues mentioned above.

- The first, clarifying the characteristics of real estate education in the UK and US through the review of the literatures on historical developments.
- The second, finding out the mainstream of current global age and picking up the Body of Knowledge (BOK) of real estate education through analyzing the current subject titles of real estate departments accredited by the RICS and AACSB-International.

- Last, identifying Japan's specificities in real estate education through core term comparison based on proximity analysis among Japan, the UK and the US as one example of eclectic model countries.

To achieve these objectives, we proceeded with this study as follow.

- First, via the review of the literatures on historical developments, we made a hypotheses about the characteristics of real estate education in the UK and US.
- Second, via the analysis of the terms used in the current subject titles of real estate departments accredited by the RICS and AACSB-International, we verified the hypotheses made in the before step.

For the analysis, the titles of 250 and 189 Mandatory Subjects for graduation were collected from the websites of 14 real estate departments in the UK and 22 real estate departments in the US universities. And the terms were extracted from the titles of mandatory subjects by using text mining techniques. After the Term Frequency (TF) and the Term Proportion (TP) of each term were calculated, the terms were grouped, counted and arranged by TF and TP order.

- Third, by using the core common terms chosen from the terms extracted in the before step, we found out the mainstream of current global age and picked up the Body of Knowledge (BOK) of real estate education. The definition of core common terms are as high frequency terms extensively appeared in the UK and US in the subject titles.
- Last, via core term comparison among the UK, the US and Japan by using proximity analysis, we identified Japan's specificities of real estate education.

Figure 1 shows the overview of research and Figure 2 shows the main analysis process of research.

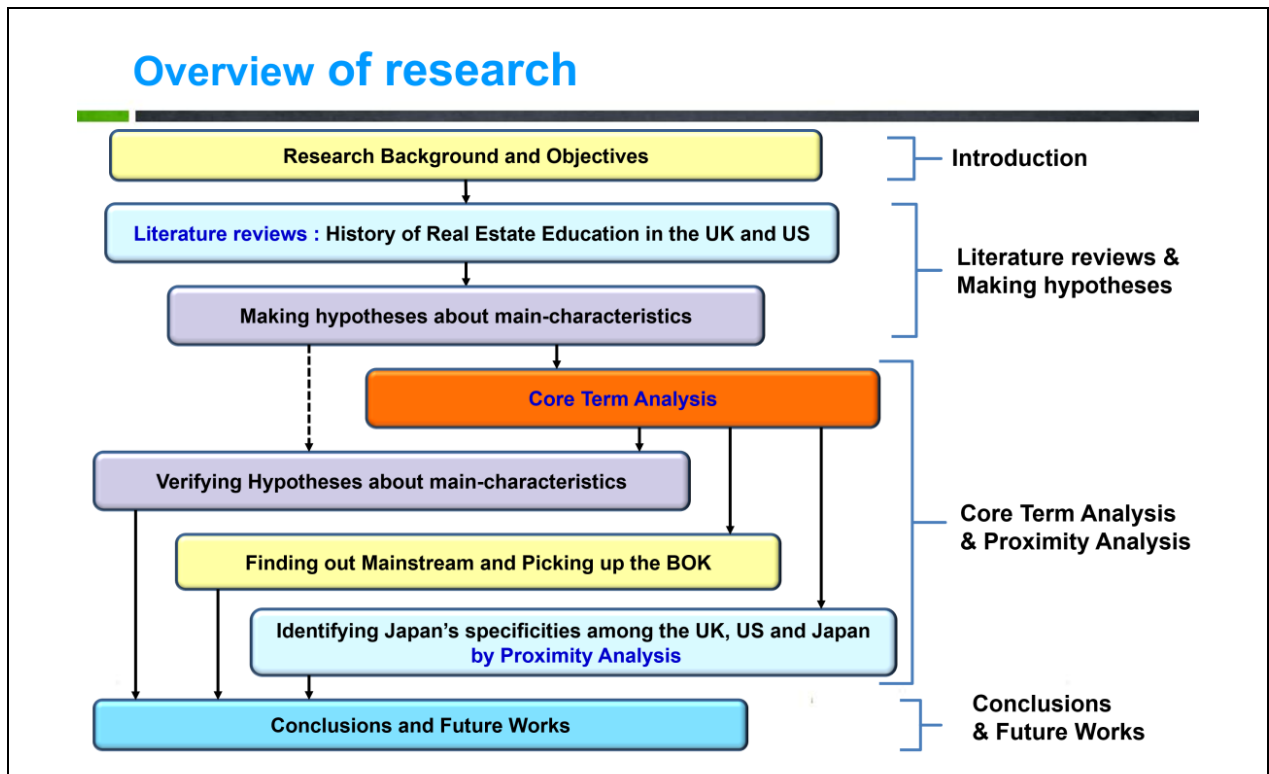


Figure 1. The overview of research

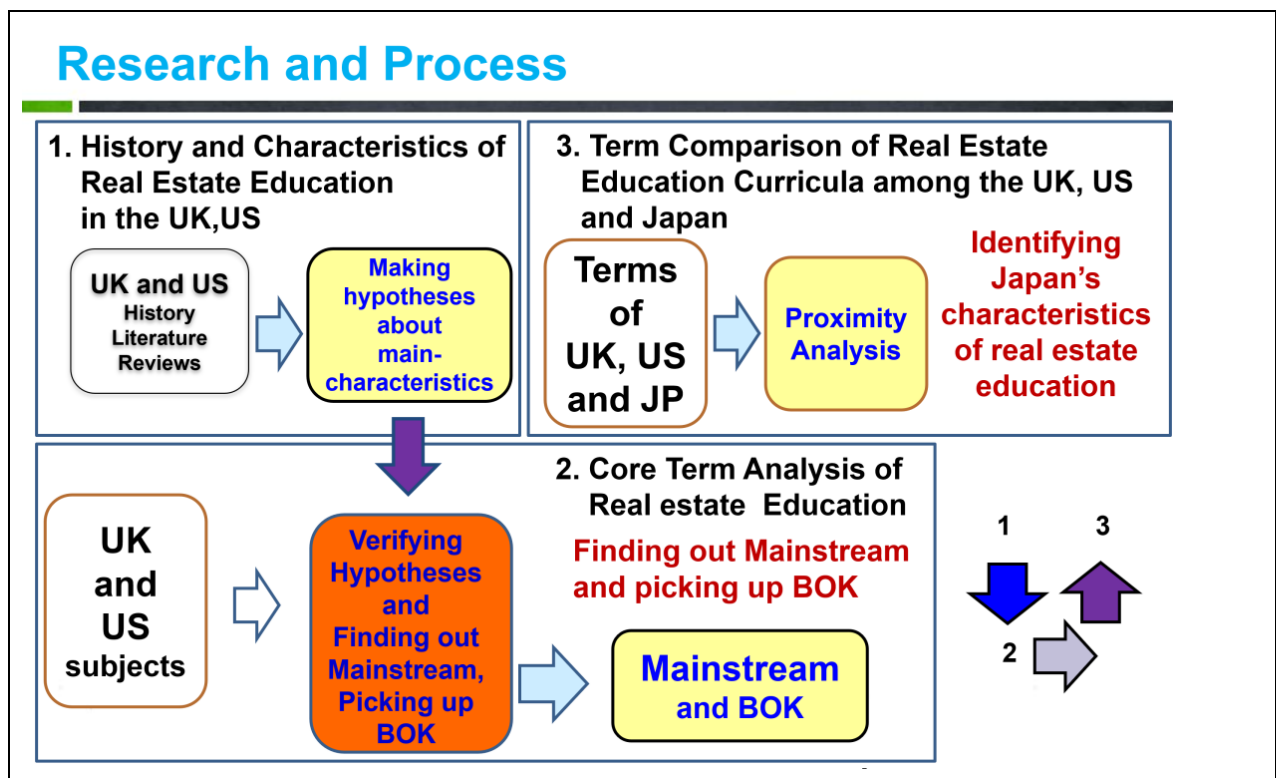


Figure 2. The main analysis process of research

1.3 Previous Research

Real estate education in higher education institutions began about a hundred years ago to train practitioners in the UK and US, and this education is now spreading worldwide with the globalization of the knowledge market.

With the expansion of free trade, globalization is proceeding in all areas of the world, including business culture, finance, investment and development as well as education and culture in the knowledge industry. From this point of view, research on real estate education suitable for the global age begins with reviewing the educational histories and current status of the UK and US which are the leading countries in real estate education. Notable studies of real estate education in the UK and US conducted in Japan are as follows. Aoyama and Hayashi [5] reviewed the current status of education programs in the UK in 1985, including the system and curriculum used by the University of Reading. Kurosawa et al. [6] introduced the past and current states of real estate education in the UK and US, and Tamada [7] presented a comparison of the educational curriculums of the UK, US, Republic of Korea and Japan. Kawakuchi et al. [8] discussed real estate education in university of Meikai and other universities in Japan, and introduced the curriculum of the Land Economy at the University of Cambridge in the UK. Recently, Hayashi and Kim [9] commented some perspectives on Japanese case by assessing past and present systems of the UK and US.

As described above, previous studies in Japan have focused primarily on introducing education systems and their histories. They have not investigated details of education curriculums, even though real estate education curriculums are urgent and important research topics, especially in today's global age.

In case of abroad researches on main direction of real estate education and finding directions to deal with the globalization of the business market, K-W.Shulte et al.[1,2] and Yu, Shi-Ming[3] surveyed, analyzed and compared the UK, US, and other regions.

Schulte et al.[1] categorizes 28 countries which have university level real estate programs among 39 countries in according to the classification scheme of Yu [3]. The 28 countries were categorized according to their current education content. According to the classification method of previous studies, the world real estate education was divided into the UK, US, and Eclectic model and the research was conducted on universities in all higher education.

Another tries in the US as a part of the curriculum research, there was a discussion to identify the knowledge paradigm that real estate science should deal. Donald R. Epley[10] concluded that the BOK (Body Of Knowledge) paradigm of real estate education was so diverse that it was too broad for an individual or group to handle efficiently.

In the analysis of the required subject system focusing on the universities that have established the major or concentration of real estate educations in the universities, the study of Roy T. Black and Joseph S. Rabianski [11] also concluded that while there are many areas of agreement as to the most important topics in real estate, there is also substantial disagreement.

In 1998, a questionnaire survey by Butler, J. Q. et al. [12] was conducted to find out what key skills were in real estate science. As a result, communication, problem solving, decision making, and negotiation skills were found to be important in real estate. In 2003, a questionnaire survey was conducted by Black, R.T. et al. [13] on 376 real estate experts from around the world about the range of knowledge that real estate science should address. The results of the survey show that real estate science is divided into 36 core knowledge fields, and the recognition of what the knowledge field is important depends on which group of real estate fields is engaged.

Black, R.T. et al. [13] argued that the curriculum should be designed to provide decision makers and managers of real estate with the concepts and skills needed to solve current and future real estate problems, regardless of the system of real estate department curriculum.

However, the main conclusion of these studies are “There is no doubt that it is important to educate real estate professionals via a well-designed curriculum. It is a very difficult object because the knowledge

scope of real estate is so diverse and too broad.”

In this regard, this study aims to provide the basic information for the well-designed curriculum and find the clues for designing the real estate education in Japan by reviewing and analyzing the subjects of the real estate departments in the UK and US universities.

1.4 Features and Contributions

As mentioned in chapter 1, the RICS and AACSB-International currently take the initiative on globalization of real estate education. Shelton et al.[14] investigated what curriculum requirements constitute real estate programs, but focused only on the curriculums accredited by AACSB-International. To overcome this limitation, this paper analyses the curriculums accredited by the RICS as well as AACSB-International for more objective analysis. This is one of the major features and contributions of this study.

Second, the core terms that constitute the titles of subjects are extracted via text mining. This is another point of distinction to Shelton [14] that used the subject title itself for analysis. We think that the analysis based on subject title itself is some barriers. For example, subject titles can offer an infinite number of combinations and some titles are unreasonably made because of the needs of the university such as hour restrictions and the requests of lecturers, etc. These make systematic analyses like categorizing the characteristics of subjects difficult. In general, the terms constituting the titles of subjects, not including articles and conjunctions, can be said to represent the core contents of the subject since they are chosen to express the contents of the subject. Even if the subject title is parsed into basic terms, the meanings of basic terms do not fade out. In this perspective, this study has proceeded on the basis of basic terms that constitute the titles of subjects rather than the entire subject title itself as in Shelton et al [14].

Third, with common core terms extracted from the curriculums accredited by the RICS and the

AACSB-International, we attempt to find out the main stream and pick up the key word of the BOK of real estate education. This work is the notable contributions of this study.

Fourth, the characteristics of real estate education of the UK and US are clarified by two step: hypotheses and verification. Via the review of the literatures on historical developments, we made a hypotheses about the characteristics of real estate education in the UK and US. And via the analysis of the terms extracted from the current subject titles of real estate departments, we verified the hypotheses. By going through this two-step process, we are sure tha it become possible to more accurately clarify the characteristics of real estate education of the UK and US.

Last, through a proximity analysis between the UK, US and Japan, we try to identify Japan's current status of real estate education in a global context. This is the first try in Japan.

Chapter 2. HISTORY AND CHARACTERISTICS OF REAL ESTATE EDUCATION IN THE UK

In this chapter, we reviewed the historical developments of the real estate education for identifying the characteristics of the UK. And on the basis of reviewing up the historical developments, we made the hypotheses about the characteristics of real estate education in the UK. We also arranged the chronology table of real estate education in the UK.

2.1 The History of Real Estate Education in the UK

The education of professional surveyors began in the middle ages in the UK. In 12~13 century, the job of surveyor appeared for the maintenance of the lord's estate and its facilities like such as castles. According to the book of Great Britain(Nick, F.; Scarlett, P. (2002)), surveyors were the managers of large rural estates in rural communities and in Early 14 century and apprenticeship system also appeared as surveyor's home career succession training under the medieval guild system[15].

In the 16th century, urbanization was accelerated by the 1st and 2nd Enclosure and in the 18th century, the Industrial Revolution demanded that the roles and skills of surveyors became more specialized and diversified³. This created new opportunities for surveyors[16].

In 1868, William Sturge established the "Institution of Surveyors(IS), the predecessor of the RICS, " for peeling off a traditional way and establishing a modern way, which eventually became the "Royal Institution of Chartered Surveyors" in 1947 [17]; this organization maintained the standards of membership and guaranteed that licensed surveyors would have outstanding qualifications and skills [15]. The IS established a compulsory professional qualifying examination for its Professional Associates and Fellows; the first

³ The businesses related to professional surveyor work are categorized by the RICS into 17 professional groups, as follows: Art and Antiques; Commercial Property; Dispute Resolution; Facilities Management; Machinery and Business Assets; Management Consultancy Professional Group; Residential Property; Valuation; Environment; Geomatics; Minerals and Waste; Planning and Development; Rural Building Control; Building Surveying; Project Management; Quantity Surveying; and Construction.

examinations were held in 1881 [18]. The IS's establishment and qualifying examination brought systematic management and improved quality to the profession, something that would be continued in the future through courses in higher education.

The 19th century was a turning point for modern education. And real estate shifted the focus from rural land surveys to the demand of urban area such as urban architecture. By the middle of the 19th century, the need for universal education was widely recognized; with the enactment of the Education Law in 1870 and amendments to that law in 1902 and 1918, the modern education system in the UK was established. Public college education began in accordance with the the modern education system. This law also affected popularizing higher education including surveyors. On the basis of such an eraly background, the Estate Management degree on behalf of traditional guild education system for the practical work of Surveyor, a precursor of the current real estate field, was established at this time.

In 1918, real estate related education at institutions of higher education was started in the UK. William Wells borrowed facilities from London University to establish the College of Estate Management(CEM) with absorbing the Chartered Auctioneers' and Estate Agents' Institute[19]. The CEM was formed to serve for the property-related estate management and construction industry sectors by providing evening courses and a post-based distance learning class [20]. In 1967, a part of the College of Estate Management(CEM) was integrated into the University of Reading. The main purpose of the CEM was for passing the RICS job certification exam to be specialists of the property-related estate management and construction industry sectors.

In 1919, the Department of Estate Management was founded by William Dampier at the Faculty of Agriculture in Cambridge University. The purpose of the Department of Estate Management was rather for providing an academic foundation not than for passing the certification examination. It was the first full-time internal degree to provide an academic foundation.

In 1922, the IS expanded and supported training by using distance learning system for surveyors at University and Institution College. After 1930, the Chartered Surveyor, the successor of IS commissioned universities to train professional practitioners but supervised universities' programs.

In 1946, the department of Estate Management was independent from the Faculty of Agriculture in Cambridge University and the fields of education were widened to include urban studies.

In the 1960s, new departments derived from the Department of Estate Management began to emerge and the programs for surveyor education were expanded to Technical college & Polytechnics.

In 1962, the University of Cambridge established a BSc in Land Economy with William Dampier, who had already created a BSc in Estate Management at the Faculty of Agriculture in Cambridge University. Like this, the origins of Land Economy study in the University of Cambridge date back to Estate Management classes taught at the Faculty of Agriculture.

In 1968, the University of Reading established a BSc in the department of Real Estate and Planning by absorbing a part of the College of Estate Management (CEM).

In 1970, three institutions – RICS, the College of Estate Management, and the Chartered Auctioneers and Estate Agents Institute – integrated into the RICS which has continued until now. Around this time, the surveying courses of the university, which were operated under the supervision of the RICS, has been transformed into an autonomous system of university education.

Figure 3 shows the developing history of the RICS.

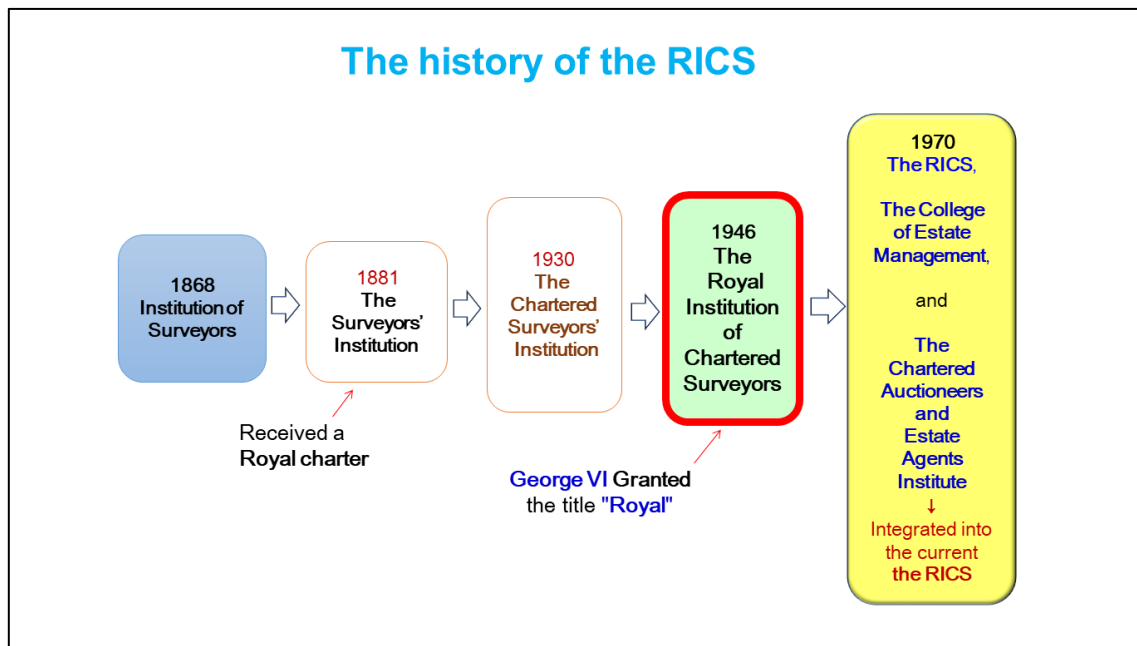


Figure 3. The developing history of the RICS

From this integration, the current the RICS was established. However, in response to a decline in the number of applicants (A nearly 50% decline in the number of student surveyors in the UK occurred between 1994 and 2001 [21]) and the progress of university autonomy, the RICS had almost entirely abandoned its role in examinations [14].

After 1999, the RICS shifted into a new role overseas. The RICS transformed itself into a global organization that facilitates quality control of Chartered Surveyors outside the UK through systems such as their accredited courses and partnerships with universities, along with the Bologna Process, a program promoting globalization in higher education in the EU [16].

2.2 Making a Hypothesis about the Characteristics of Real Estate in the UK

To summarize the history of real estate related education in the UK, the education on real estate has roots in Surveyor's Training for lords' estate management. The College of Estate Management(CEM) and the Department of Estate Management established for higher education to educate specialists mainly related to

the physical aspects of estate management after Amendments to the Education Law in 1918 .

The first appearance of named Real Estate Department was the University of Reading, which established a BSc in Real Estate and Planning established in 1968 by absorbing a part of the College of Estate Management (CEM).

From these series of historical developments, we make a hypothesis about main-characteristics of UK as below.

『The main-characteristics of real estate education in the UK can be said to have been practiced with center on the physical aspects having roots in surveyor's training for lords' estate management.』

2.3 The Chronology of Real Estate Education in the UK

In this chapter, the main chronology of real estate education in the UK is summarized in the table format as follows.

Table 2. The Chronology of Real Estate Education in the UK

years	The Chronology of Real Estate Education in the UK
A.D. 8 ~ 9 C	In Europe, the institutional maintenance of Manorialism was established and became the economic basis of feudalism
A.D.12~13 C	The appearance of surveyors in the manorial system.
Early A.D.14 C16C	Apprenticeship: Surveyor's Home Career Succession Training, Auctioneer's Training Simultaneously
Mid 18C ~ Early 19C	Start of 2nd Enclosure: privatization of landlords, wage labor of small farmers, creation of enclosure map by Enclosure surveyor, differentiation and evolution of real estate business such as commissioner, surveyor, agent, auctioneer, and appraiser, development of modern land management service

1880	There was a conflict between the land caretaker (Charles C Boycott) and the tenants land use management. This case is an example of Land Questions reflected in social problems and became the economic term “boycott” of today. Bailiff, church (parish), university (University: assets of local college) Large land ownership: Bailiff, church, parish, college
1868	Establishment of IS (Institution of Surveyors), the predecessor of the RICS (non special education)
1881	Member of the Institution of Surveyors founded by William Sturge. The Surveyors’ Institution: Received a Royal Charter as Surveyors’ Institution
1835~7	1 st Railway speculation boom
1844~7	2 nd Railway speculation boom
1870	The enactment of the Education Law
1900’s~ Late 1900’s	Non-agricultural serving exam preparation course at Heriot Watt College (Edinburgh), Stowe College (Grasgow)
1902	Amendments to that law in 1902 and 1918, the modern education system in the UK was established.
1911	At Birmingham Univ., town planning courses are conducted by surveyors who are practitioners.
1918	William Wells borrows facilities from London University to establish the College of Estate Management, which award B.Sc degrees (Focusing on passing the RICS job certification exam, a part of the Department in 1967 integrated into the Univ. of Reading)
1919	Department of Estate Management was founded by William Dampier in the Faculty of Agriculture Cambridge University (Not for passing the certification exam, the first full-time internal degree to provide an academic foundation for the education of the surveyor, Incorporated into the department of estate Management in 1964)
1922	Institution of Surveyors(IS), the predecessor of the RICS, received a Royal Charter, expanded and supported training for Surveyors at Full-time University and Institution College, established a distance learning system (The RICS and College of Estate Management also received a Royal Charter)
1930	The Surveyors’ Institution became “The Chartered Surveyors’ Institution”.
1938	Independent CEM was absorbed in the University of London, which then began offering a BSc in Estate Management.
1946	Department of Estate Management was independent of the Faculty of Agriculture in Cambridge University and teaching field was widened to include urban studies.
1947	George VI Granted the title “Royal” the professional body became The Royal Institution of Charter as Surveyors’

- 1960 Expansion surveying courses to Technical college& Polytechnics: (1960~1970)
- 1962 The University of Cambridge established a BSc in Land Economy with William Dampier, who had already created a BSc in Estate Management at the same university.
- 1968 The University of Reading established a BSc in Real Estate and Planning
- 1970 From this integration, the current The RICS was established.
Three institutions – The RICS, The College of Estate Management, and The Chartered Auctioneers and Estate Agents Institute – all merged.
And Assessment of Professional Competence (APC) started by the RICS
- 1991 Commencement of sustainable retraining of compulsory CPD (Counting Professional Development) for the RICS members
- 1994 Abolition of supervision role of the RICS and recognition of autonomy for universities in the UK
(The RICS has abandoned the role of surveillance over land surveillance, mineral surveying, quantity surveying, planning and development, valuation, including building surveying)
- 1999 The process begun with the Bologna declaration.
The RICS shifted into a new role overseas; The RICS transformed itself into a global organization that facilitates quality control of Chartered Surveyors outside the UK through systems such as their accredited courses and partnerships with universities, along with the Bologna Process, a program promoting globalization in higher education in the EU.
-

Chapter 3. HISTORY AND CHARACTERISTICS OF REAL ESTATE EDUCATION IN THE US

In this chapter, we reviewed up the historical developments of the real estate education for identifying the characteristics of the US. And on the basis of reviewing up the historical development, we made the hypotheses about the characteristics of real estate education in the US. We also arranged the chronology table of real estate education in the US.

3.1 The History of Real Estate Education in the US

Since the early days of the US, there had been a market environment in which the transfer of land is free. The US has embarked on policies of moving away from Europe. Among them, a representative policy was the free trade of land. The British settlers who immigrated to the US pursued the freeholds in the New England region [23]. This custom was established in the New England region dating to before independence in 1776, which provided for a freehold of land by a certificate of registration of the transfer of the land rights[24].

In 1794, Real Estate Management Company appeared in Cruikshank Company, New York[24]. The word of “Real Estate” appeared on literatures for the first time in the history.

The year of 1862 was the age that is important in related with real estate. In this year, the Homestead Act⁴ was enacted for the purpose of increasing the number of independent farmers and for promoting the expansion of eastern industrial capital into the West together with western rail development. But after a few years, it caused unfavorable problems and land speculation. The unfavorable use of the Homestead Act and the conflicts between immigrants due to monopoly land ownership caused the land question that became major social issues in the US.

⁴ If a pioneer who resides for five years grants 160 acres of land free of charge or who has lived longer than six months, he is entitled to purchase land at \$ 1.25 per acre.

Enactment of the Morrill Act⁵ was also enacted in this year. The Morrill Act with the support of the government was implemented for promoting higher education. This law had the effect of popularizing higher education and became a driving force of modern American industry. But it also caused problems of land ownership between some individuals and universities.

These social situations and land markets caused various problems like monopoly and land speculation. Henry George in 1879 issued the social problem called the Land Question⁶ and Claimed Single Tax⁷ [25,26].

Many economists and practitioners became interested in social phenomena represented by Land Question. The solutions to to solve the negative repercussions resulting from the Land Question were reflected in the contents of university education. In 1886, a course called Land Tenure was opened at the University of Kansas by James H. Canfield as means of investigating the Land Question; in 1892, Fred M. Taylor opened a lecture entitled the History and Theory of Land Tenure and the Agrarian Movement at the University of Michigan. Like these, courses related to Land Question were opened in some universities; however, university officials saw to it that such courses were short lived because of the lack of university stakeholders' understanding. These courses were abolished after two years [27]

But, a course called "Property and Rent of Land" that began as a seminar in 1892, taught by R. T. Ely at the German Historical School at Wisconsin University, had been carried on and became a regular university course titled "Land_Tenure" in 1916[27]. "Land Tenure" was renamed to "Land Economics" in 1919.

In 1905, the first establishment of a Real Estate course that offered a full degree in higher education at two University. Real Estate courses were opened in Wharton School of Finance and Commerce and Evening

⁵ Free Grant of Land for Victims of Independence War and Universities.

⁶ Land question: Henry George (social problem) pointed out the misappropriation of illegal land compensation, conflict with natives due to the big company's monopoly land ownership, and the land agents moral hazard.[26]

⁷ Single tax: At the time, Henry George argued that the biggest cause of social inequality was the inequality of land ownership, and insisted that the unpaid income (all economic rent derived from land lease) from land ownership be single-taxed and all other taxes removed.[25] Most economists had little support for Henry George, but his demands for equal opportunity and systematic economic analysis were the incentives for reform. Economists and land practitioners also became interested in social problems caused by land problems.

School at Philadelphia and in School of Commerce at New York University. Real Estate course was also opened at Wharton School of Finance and Commerce, Evening School in Philadelphia University and at School of Commerce, Evening School in New York University.

Like these course, real estate education at institutions of higher education were started in the US from 1905. It is 13 years earlier than UK. In case of the UK, the College of Estate Management(CEM) established by William Wells in London University was the first time of of higher education in 1918. In 1908, the School of Economics in Pittsburgh University also opened Real Estate course [28]. The general purpose and ideals put forth in these classes are illustrated in the following: “Thus, collegiate courses in real estate were designed to improve the productivity and ethical standards of real estate dealers, to improve dealers’ understanding of their economics and social function, and to provide an education about real estate customs, economics and valuation for consumer and business property owners and renters” [28].

In 1916, the first establishment of a land tenure course that gives a formal degree in higher education institutions. The courses of Land Tenure were opened by R. Ely and Taylor in Wisconsin University and in Ohio State University. As mentioned above, “Land Tenure” was renamed to “Land Economics” in 1919.

In 1916, the Association of Collegiate Schools of Business (ACSB) was established; this organization later evolved into The Association to Advance Collegiate Schools of Business (AACSB) in 1919. In 1923, the Joint Commissions (Participation in AACSB, Land Institution, and NAREB to discuss real estate education[28].) were opened under the auspices of NAREB which was established in 1908 by the US government for the “expansion of existing knowledge through education and research” with the aim of leading brokers [28]; the first three curriculums for standard real estate education were developed in 1924 (Fisher Real Estate Practice (Principles of Real Estate Practice, 1924) on real estate practice, Ely and Morehouse (Elements of Land Economics, 1924) on Land Economics, and Babcocks (Appraisal of Real Estate, 1924) on appraisal [28]). These efforts contributed greatly to the development of academic education for real estate dealers and other practitioners. In 1931, a standardized real estate curriculum began to be taught at MBA(Master of Business Administration)-level business schools [28]. Real estate

education from the early 1920s to the mid-1950s was a quantitative system focused on the acquisition of real estate qualifications; main object of real estate education at that time was for licensing and professional development education by land economics approach[29].

One area of remarkable growth in terms of the number of real estate programs in the 1950s was MBA programs. After 2nd World War, an increasing number of retired soldiers seeking to get qualified as real estate brokers had promoted the development of real estate vocational education in MBA. The number of MBA programs began to increase rapidly at this time, and many MBA included one or two real estate courses. Some MBA's even offered concentration courses[30].

However, such rapid growth of real estate courses came up against an unexpected wall by the Gordon-Howwell (Ford) and Pierson (Carnegie) report 1959 [31]; the authors expressed a negative opinion of the content and quality of real estate education that focused on the acquisition of real estate certification. The Gordon-Howwell (Ford) and Pierson (Carnegie) report said that undergraduate programs were insufficiently analytical, too institutional, and vocationally-oriented. They recommended that business schools offer only a course or two in the core fields of marketing, finance and management. They also suggested that the number of courses in "inner" fields such as real estate and insurance be reduced, the remaining courses be made much more analytical, and real estate not be a part of the "core curriculum." They argued that academic real estate education at the university should separate education from any certification exam [30]. This led to an overall shrinkage in the spread of real estate education, and many real estate programs and courses moved to finance departments [30]. This is the historical background of many real estate programs now in finance departments and many subjects of real estate programs having finance related topics in the US.

The early 1960s postwar economic expansion and return to peaceful life meant an increase in demand for real estate qualifications, and university real estate departments began to recover [29,30]. During this period, real estate education turned from land economics approach to a problem-solving approach for answering to developing demand by introducing various analytical techniques (also called analysis for

decision-making or real estate administration); at the same time, investment analysis began to be recognized as an important topic of study, providing an integration framework and an analytical basis for real estate decision-making [29]. At the end of 1964, The American Real Estate and Urban Economics Association (AREUEA) was established and researches in real estate science became more analytical and academic[30]. In the 1970s and 1980s, the problem-solving approach developed two branches: multidisciplinary and financial management. With the proliferation of MBA programs in the 1980s, investment and finance became the most popular topic. This trend that has continued to this day [30].

In the 1990s, with the expansion of globalization, The American Real Estate Society (ARES; founded in 1985) became a catalyst for the formation of The International Real Estate Society (IRES; formed in 1992) and other real estate societies around the world [30]. The IRES has contributed to the support and development of international real estate education by holding a conference every year.

As a result of the globalization trend, the AACSB decided to accredit its first school outside of North America (ESSEC⁸) in 1997 and changed the organization's name to the AACSB International Association for Management Education. In 2001 it renamed itself again, changing to the AACSB International Association to Advance Collegiate Schools of Business; the goal was to globalize and expand its certification program internationally [32].

3.2 Making a Hypothesis about the Characteristics of Real Estate in the US

To summarize the history of real estate related education in the US, the education on real estate has evolved in the business environment based on the free transfer of land ownership and the education on real estate has roots in Seminar on Land tenure.

⁸ ESSEC Business School (École Supérieure des Sciences Économiques et Commerciales) is an international higher education institution located in France (Cergy-Pontoise and La Défense in the Paris area), Singapore and Morocco. Founded in 1907, ESSEC Business School is one of the most selective French "*Grandes écoles*" and referred in France as one of the "trois Parisiennes" (*three Parisians*), together with ESCP and HEC Paris. ESSEC Business School is one of the 76 schools in the world to have obtained the triple accreditation of AACSB, EQUIS and AMBA. ESSEC is the first European business school to obtain AACSB accreditation. <http://www.essec.edu/en/>

First real estate course in higher education was established in Wharton School of Finance and Commerce(1905). After Ford& Carnegie Report(1959), most of the real estate curriculums have belonged to the Finance department, and major subjects have been finance related topics. After 21st century began, the main approaches of real estate education have been practiced with a focus on finance and investment with globalization.

From these series of historical developments, we make a hypothesis about main-characteristics of US as below.

『The main-characteristics of real estate education in the US can be said to have been practiced with focus on finance and investment in the business environment based on the free transfer of land ownership dating to before independence.』

3.3 The Chronology of Real Estate Education in the US

In this chapter, the main chronology of real estate education in the UK is summarized as follows.

Table 3. The Chronology of Real Estate Education in the US

years	The Chronology of Real Estate Education in the US
1776	Declaration of Independence
1785	Establishment of Ordinance for national land maintenance
1794	Appearance of Real Estate Management Company (Cruikshank Company, Yew York)
1830 - 1841	Chicago Urban Land Speculation Boom
1862	The Homestead Act (If a pioneer who resides for five years grants 160 acres of land free of charge or who has lived longer than six months, he is entitled to purchase land at \$ 1.25 per acre) promotes the expansion of eastern industrial capital into the West. This legislation was enacted for the purpose of increasing the number of independent farmers, but it was abused for land speculation. Enactment of the 1st Morrill Act (Free Grant of Land for Victims of Independence War and Universities. This law also has the effect of popularizing higher education in real estate, but it also causes problems of land ownership between some individuals and universities.)
1865	Establishment of ASSA (American Social Science Association)
1879	George.H : Claiming Single Tax and Land Question
1880s	Los Angeles Urban Speculation Boom (1890~1933) New York City Urban Speculation Boom
1886	Semina formation for Land tenure(Land Economics) based on Historical Approach at Kansas University (Aborted after 2 years)
1892	Semina formation for Land tenure(Land Economics) (by R.Ely) trained in the German Historical School at Wisconsin University(At that time, it was not a formal degree, but a formal degree began to be recognized after 1915.) For semina formation for Land tenure(Land Economics) based on Historical Approach at Michigan University (Aborted after 2 years)
1904	West Side YMCA of New York: Adult Education for practitioner (non collegiate level)
1905	The first establishment of a Real Estate course that offers a full degree in higher education at Two University. Real Estate course was opened in Wharton School of Finance and Commerce, Evening School at Philadelphia. Real Estate course was opened in School of Commerce(Evening School) at New York University.

1908	Real Estate course was opened in School of Economics(Evening School) at Pittsburgh University.
1915	Establishment of NAREB (National Association of Real Estate Boards)
1916	The first establishment of a land tenure course that gives a formal degree in higher education institutions. Land tenure(Land Economics) course(ByR.Ely and Taylor) was opened in Wisconsin University. Land tenure(Land Economics) course was opened in Ohio State University.
1919	Establishment of AACSB (The American Association of Collegiate Schools of Business) at Wisconsin University (Land tenure course was changed to Land Economics course)
1923	1st Real Estate Dealers Conference at Madison, Wisconsin (hosted by NAREB(National Association of Real Estate Boards), The United YMCA Schools, the Institute for Research in Land Economics and Public Utilities (Land Institute) and participation in AACSB) 2nd Real Estate Dealers Conference at Madison, Wisconsin(Joint commission on Real estate Education: Business proposal of dedicated textbook for Real Estate)
1924	Publication of Real Estate text books (Principles of Real Estate Practice (Fisher,1924) for the subject of Real Estate Practice, Elements of Land Economics (Ely and Morehouse,1924) for the subject of Land Economics, The Appraisal of Real Estate (Babcock,1924) for the subject of Appraisal) Licensing and Professional development education for real estate by Land Economics Approach. (1920s'~mid1950)
1931	A standardized real estate curriculum began to be taught at MBA-level business schools.
1950	An increasing number of veterans G.I.(Government Issue) seeking to qualify as Real Estate Brokers through many vocational education programs have led to the development of real estate vocational education. after 2nd World War.
1959	Ford& Carnegie Report: The business school should focus on Marketing, Finance, Management education, and the Real Estate part of the business school should be part of the Finance department. Most of the US real estate curriculum currently belongs to the Finance department, and major subjects are Finance related topics. Real estate education is transformed from Land Economics Approach to Problem Solving Approach (Multidisciplinary Approach) by introducing various analytical techniques (1960s' ~ 1970s')
1964	Establishment of AREUEA (American Real Estate and Urban Economics Association) separated from ASSA: Hosting Annual Conference.
Late1970s' ~ early1980s'	Development of Financial Management Approach (Problem Solving Approach and Financial Management Approach continue to coexist) (Late1970s' ~ early1980s')
1985	Establishment of ARES (American Real estate Society): Hosting Annual Conference
1992	Launch of International Real Estate Society (IRES) with globalization.

Chapter 4. FINDING OUT THE MAINSTREAM AND PICKING UP THE BOK OF REAL ESTATE EDUCATION BY CORE TERM ANALYSIS

In this chapter, we explain core term analysis method for extracting terms from the subject titles accredited by the RICS and AACSB-International. The extracted terms were used for finding out the mainstream of the current global age and picking up the BOK of real estate education. And the extracted terms were also used for verifying and modifying the hypotheses made in chapter 2 and 3 about the characteristics of real estate education in the UK and US. We also examined Japan's specificities of real estate education via a proximity analysis in this chapter.

4.1 Data used in this study

In this study, 14 real estate departments in the UK and 22 real estate departments in the US accredited by the RICS and AACSB-International are selected for core term analysis. The selected real estate departments are listed in Table 6 and 7. "Mandatory Subjects for graduation"(MS) of the selected real estate departments are excerpted from the 2016 version of the websites. The reason for only using Mandatory Subjects in this study is that there are a wide variety of curriculum choices and options at each university, as well as many differences in the operating systems. As these make systematically analyses difficult, we focus on only Mandatory Subjects in this study.

As a distinctive point of this study for finding the specificities of real estate education of each country, we proceed with basic terms that constitute the subject titles, not the entire subject title itself. This is different from other studies. For one of the examples, Shelton [14] used the subject title itself for analysis.

Table 4. Real Estate departments in the UK university

Real Estate Departments in the UK 14 University
1. Real Estate (Birmingham City University)
2. Real Estate Surveying (Edinburgh Napier University)
3. Real Estate Management (Kingston University)
4. Real Estate Management and Business (Liverpool John Moores University)
5. Real Estate (Northumbria University)
6. Real Estate (Nottingham Trent University)
7. Real Estate Management (Oxford Brookes University)
8. Real Estate (Royal Agricultural University)
9. Real Estate (Sheffield Hallam University)
10. Real Estate (Ulster University)
11. Planning and Real Estate (University College London)
12. Real Estate (University of Reading)
13. Real Estate (University of the West of England)
14. Real Estate (University of Westminster)

Table 5. Real Estate departments in the US university

Real Estate Departments in the US 22 University
1. Finance, Insurance & Real Estate (Baylor University)
2. Real Estate and Urban Land Economics (California State University, Fresno)
3. Real Estate (California State, Los Angeles)
4. Real Estate (California State, Northridge)
5. Real Estate (Clarion University of Pennsylvania)
6. Real Estate and Urban Economics (University of Connecticut)
7. Real Estate and Built Environment (University of Denver)
8. Real Estate (Florida International University)
9. Risk Management / Insurance Real Estate and Regal Studies (Florida State University)
10. Real Estate (University of Georgia)
11. Real Estate (Georgia State University)
12. Real Estate (University of Mississippi)
13. Real Estate (University of Nevada, Las Vegas)
14. Real Estate (University of North Texas)
15. Real Estate (University of Northern Iowa)
16. Real Estate (Ohio State University)
17. Real Estate (University of Saint Thomas)
18. Real Estate (San Diego State University)
19. Real Estate, Risk Management, and Business Law (Southern Methodist University)
20. Real Estate (Temple University)
21. Real Estate (University of Texas, Arlington)
22. Real Estate (University of Wisconsin-Madison)

4.2 Core Term Analysis Method

This study adopts text mining method to analyze the curriculum of each real estate department among various big data analysis techniques.

Text mining is a process of analyzing natural texts with irregular or amorphous features to extract some useful information for a specific purpose Witten[33]; Jusoh[34]; Inzalkar[35]. Due to the development of the Internet and social networks, a large number of data is being generated and stored. These data include books, documents, letters, newspaper articles, emails, announcements, blogs, web pages, SNS, speeches, etc. They can be analyzed by text mining techniques. Basically, text mining is used to extract information such as text summarization, document retrieval, and information retrieval based on natural language processing technology, and is expanded to include text classification, document clustering, language recognition, and key phrase identification Khan [36].

●Process for core term extraction

We use a text mining method for extracting core terms that are high frequency terms among basic terms. The text mining method is efficient method for extracting information from unstructured textual electronic documents Kao, A. [37]. The typical process of text mining is conducted by four steps as follows.

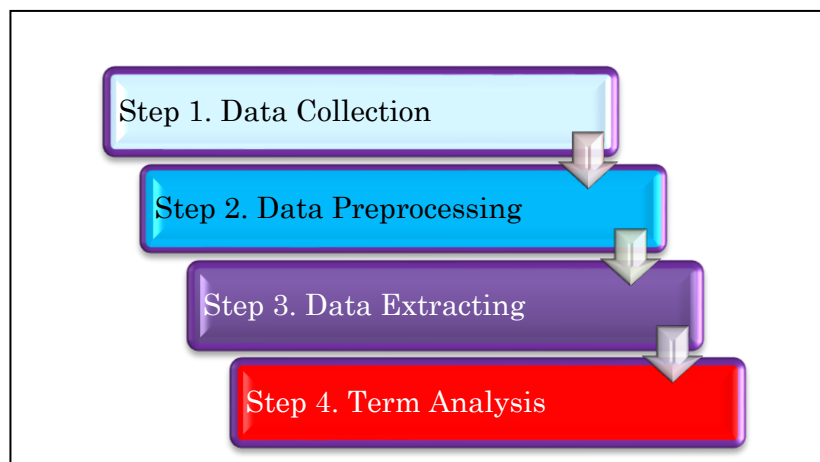


Figure 4. The process of textmining is conducted by four steps

In this paper, we use the KoNLP Package of R program for text mining and the detailed mining process is as follows.

A. Step 1. Data Collection

As explained in 4.1, we collect 250 and 189 subjects from 14 real estate departments in the UK accredited by the RICS and 22 real estate departments in the US accredited by AACSB-International, respectively. These data were excerpted from the 2016 version of the websites of the real estate departments. Appendix A and B that show the subjects collected from the websites of 14 real estate departments in the UK and 22 real estate departments in the US.

Figure 5 is one example of R program for Listing subjects of the UK.

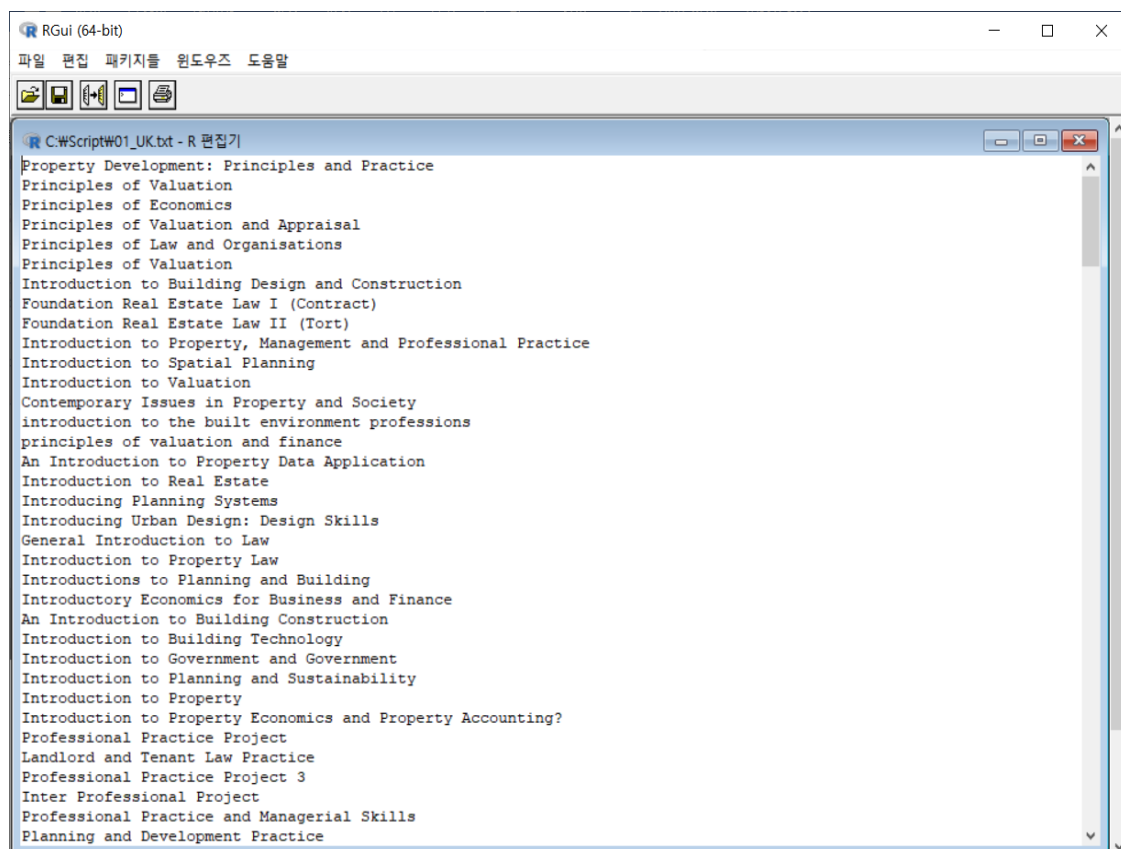


Figure 5. Example of R program for Listing subjects of the UK

B. Step 2. Data Preprocessing

The data preprocessing step for analysis consists of two steps: Disassembling and Filtering and removing.

(1) **Disassembling** the titles of mandatory subjects into basic terms

Ex)

- Business of the Built Environment

→ “Business”, “of” , “the” , “Built”, “Environment”

- Law and Economics for the Built Environment

→ “Law”, “and”, “Economics”, “for”, “the”, “Built”, “Environment”

- Business and Economics for Surveyors

→ “Business”, “and”, “Economics”, “for”, “Surveyors”

(2) **Filtering and Removing** of the terms that have no relation to subject characteristics, such as article, preposition and conjunction.

In the above example, Filtering and Removing “and”, “AND”, “of” , “in” , “an” , “An” , “the” , “I” , “II” , and “for”.

Figure 6 is one of example of R programming code for Filtering and Removing.

```

RGui (64-bit)
파일 편집 패키지를 윈도우즈 도움말

C:\Script\for_paper.R - R 편집기
txt <- readLines("title_list.txt") # Read a file containing titles of subjects

words <- sapply(tolower(txt), extractNoun, USE.NAMES=F)

c <- unlist(words)
words <- Filter(function(x) {nchar(x) > 1}, c)

# Remove conjunctions and prepositions
words <- gsub("and", "", words)
words <- gsub("of", "", words)
words <- gsub("in", "", words)
words <- gsub("for", "", words)
words <- gsub("I", "", words)
words <- gsub("II", "", words)
words <- gsub("An", "", words)
words <- gsub("an", "", words)
words <- gsub("AND", "", words)
words <- gsub("to", "", words)
words <- gsub("for", "", words)
words <- gsub("and", "", words)

write(unlist(words), "output.txt")
rev <- read.table("output.txt")

wordcount <- table(rev) # Word Counting
txt <- as.data.frame(sapply(txt, tolower))
head(sort(wordcount, decreasing=T), 50) #Sorting

a<-head(sort(wordcount, decreasing=T), 50)
barplot(a, main="WORD COUNTING", xlab="Words", ylab="Count")

savePlot("real2.jpg", type="jpg")

library(RColorBrewer)

palette <- brewer.pal(9, "Set1")

```

Figure 6. A part example of R programming code for Filtering and Removing

(3) **Extracting** the terms representing the core contents of the subject.

“Business”, “Business”, “Built”, “Built”, “Environment”, “Environment”, “Law”, “Economics”, “Economics” and “Surveyors”.

(4) **Grouping** of the same terms, Counting and, Arranging based on frequency order.

In the above example, “Business”(2), “Built”(2), “Environment”(2), “Law”(1), “Economics”(2) and “Surveyors”(1).

Figure 7 is one of example of a grouping term list based on term frequency order.

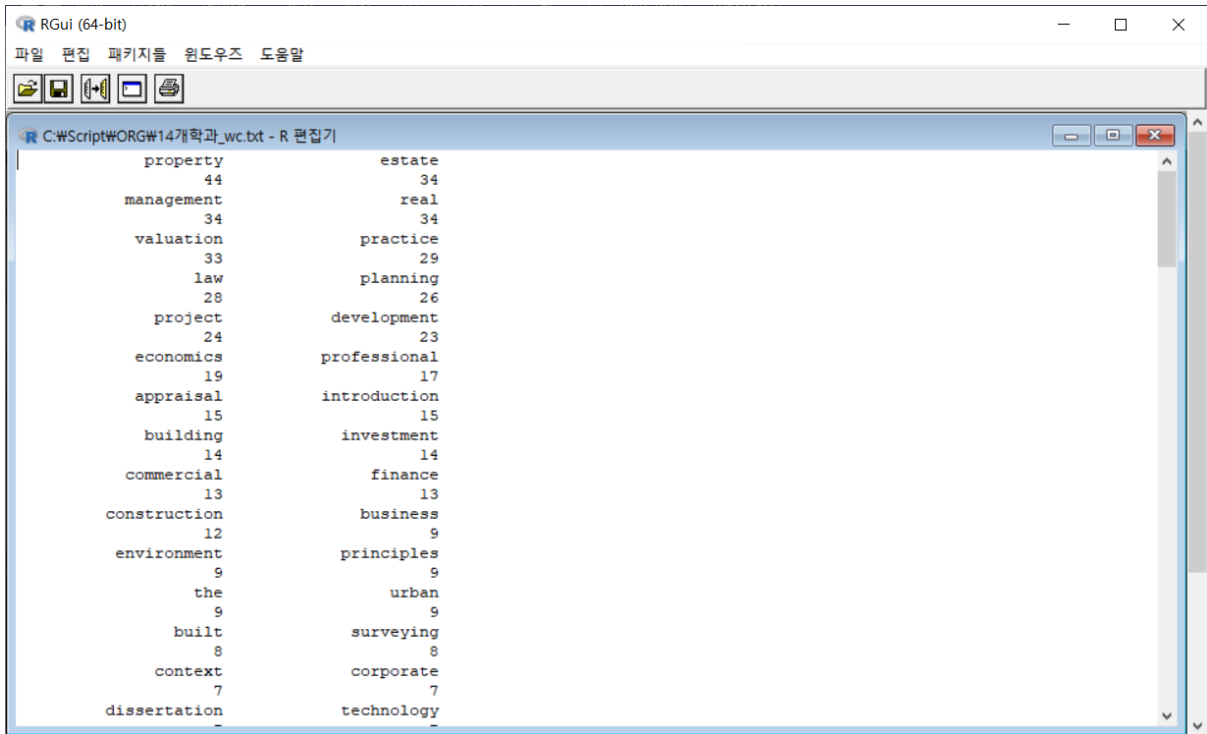


Figure 7. One example of grouping term list based on term frequency order.

After arranging by the Term Frequency (TF), the Term Proportion (TP) of each is calculated and used as a criterion for selecting core terms.

$$TP(\text{Term Proportion}) = \frac{TF_i}{\sum TF_i}$$

TF_i refers to the i^{th} Term in total numbers.

TF (Term Frequency)

i : included in the set of BT

TP_i : calculated by dividing the number of Frequency of the i -th term by the total frequency of all terms.

4.3 Core terms and subjects of the UK and US

4.3.1 Selected core terms and subjects

In the UK, core terms are selected by the ranking of TF and TP from total 739 terms extracted from 250 Mandatory Subject listed on the webpages of 14 real estate departments accredited by the RICS.

In the US, core terms are selected from total 585 terms extracted from 189 Mandatory Subject listed on the webpages of 22 real estate departments accredited by AACSB-International. The selected terms based on TF and TP are illustrated in Table 6 as follows.

Table 6. Core terms from Mandatory Subjects (MS) of the UK and US

UK	TF	TP	US	TF	TP
Property	44	0.060	Real	110	0.188
Management	36	0.049	Estate	109	0.186
Valuation	36	0.049	Finance	42	0.072
Estate	34	0.046	Management	32	0.055
Real	34	0.046	Law	21	0.036
Practice	30	0.041	Investment	18	0.031
Law	28	0.038	Analysis	14	0.024
Planning	27	0.037	Principles	14	0.024
Project	27	0.037	Business	12	0.021
Development	24	0.032	Marketing	11	0.019
Economics	21	0.028	Appraisal	10	0.017
Professional	20	0.027	Property	9	0.015
Introduction	19	0.026	Development	8	0.014
Building	16	0.022	Banking	7	0.012
Appraisal	15	0.020	Valuation	7	0.012
Finance	14	0.019	Environment	6	0.010
Investment	14	0.019	Economics	5	0.009
Commercial	13	0.018	Insurance	5	0.009
Construction	13	0.018	Legal	5	0.009
Business	10	0.014	Planning	5	0.009
Environment	10	0.014	Risk	5	0.009

Surveying	10	0.014	Research	4	0.007
Principles	9	0.012	Advanced	3	0.005
Urban	9	0.012	Brokerage	3	0.005
Others	226	0.302	Others	120	0.202

Note: Term Frequency (TF) and Term Proportion (TP) are rounded to four decimal places in the Table 6. Extracted terms are reconstructed in the Table 6 and the terms ranked lower than 24th are omitted in the Table 6. The term “financial” is integrated into “finance” and the term “designing” is integrated into “design”.

We also extracted core subjects from the UK 250 and the US 189 mandatory subjects by the same method. The extracted core subjects are listed in Table 7.

Table 7. Core Subjects form Mandatory Subjects (MS) of the UK and US

UK	TF	TP	US	TF	TP
Dissertation	7	0.0028	Real Estate Finance	16	0.00847
Valuation	6	0.0024	Real Estate Law	13	0.00688
Planning & Development	5	0.0020	Real Estate Principles	7	0.00037
Law	4	0.0016	Real Estate Appraisal	5	0.00265
Professional Practice			Principles of Real		
Project	4	0.0016	Estate	4	0.00212
			Real Estate		
Real Estate Economics	4	0.0016	Development	4	0.00212
Construction Technology	3	0.0012	Real Estate Investment	4	0.00212
Development Project	3	0.0012	Investments	3	0.00159
Integrative Project	3	0.0012	Real Estate	3	0.00159
			Real Estate		
Property Management	3	0.0012	Fundamentals	3	0.00159
			Real Estate Investment		
Research Project	3	0.0012	Analysis	3	0.00159
Surveying	3	0.0012	Real Estate Investments	3	0.00159
Applied Valuation	2	0.0008	Real Estate Practices	3	0.00159
Building Design &			Urban and Regional		
Technology	2	0.0008	Economics	3	0.00159
Corporate Real Estate	2	0.0008	Bank Management	2	0.00106
Corporate Real Estate	2	0.0008	Intermediate Financial	2	0.00106

Management			Management		
Foundation Real Estate			Legal Environment of		
Law	2	0.0008	Real Estate	2	0.00106
Investment Appraisal	2	0.0008	Marketing Research	2	0.00106
CMS	2	0.0008	Money and Banking	2	0.00106
Principles of Valuation	2	0.0008	Property Management	2	0.00106
Projects in Real Estate			Real Estate Finance and		
and Planning	2	0.0008	Mortgage Banking	2	0.00106
			Real Estate Law for the		
Real Estate Development	2	0.0008	Paralegal	2	0.00106
Valuation Theory and			Real Estate Marketing		
Applications	2	0.0008	and Brokerage	2	0.00106
Others	180	0.0720	Real Estate Valuation	2	0.00106
			Others	95	0.05026

4.3.2 Comparing term-based analysis with subject-based analysis

We compare the distribution of terms and subjects through pie graph. Figures 8 and 9 are the phi graphs for the extracted terms of the UK and US by the method of term-based analysis proposed in this paper. While, figures 10 and 11 show the phi graphs for the extracted subjects from the UK and US by the method of subject-based analysis used by Shelton.

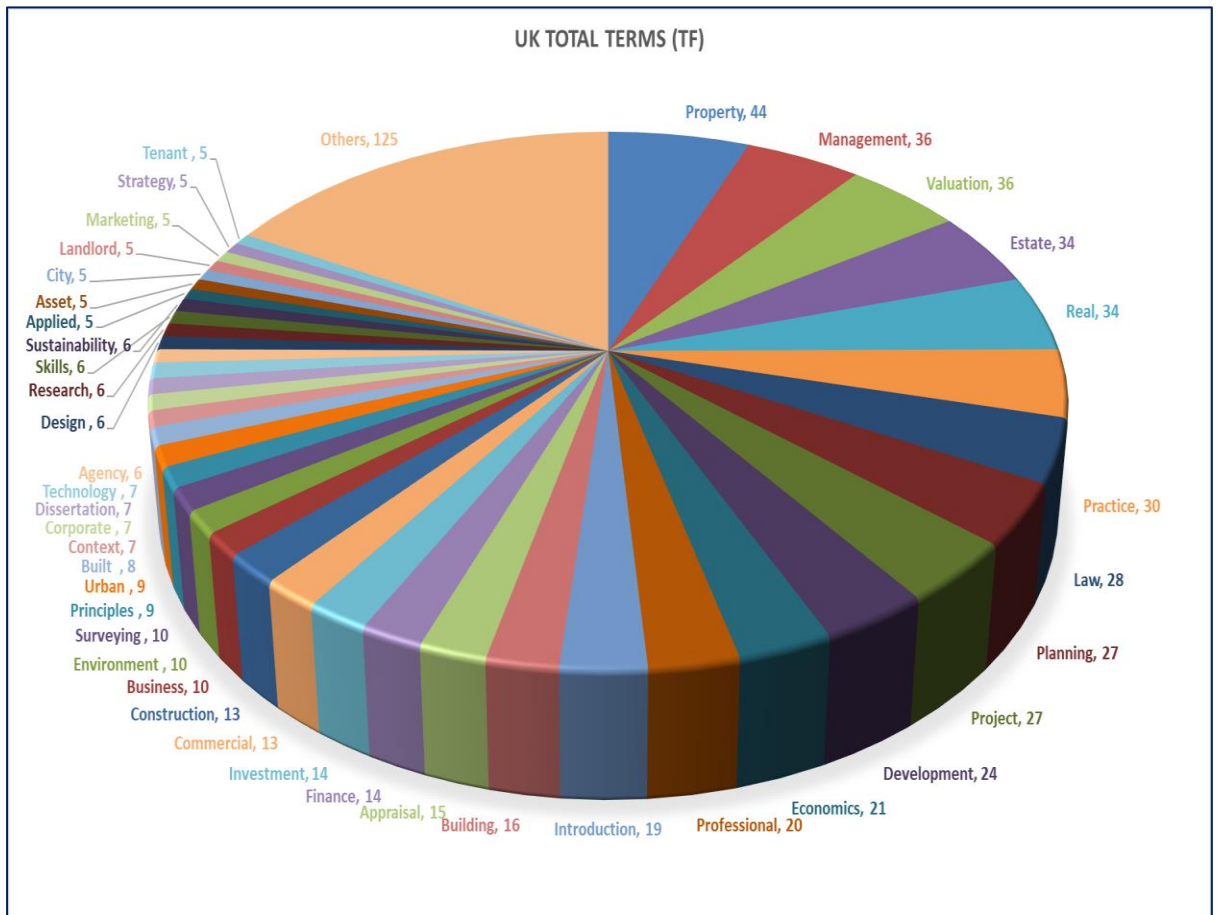


Figure 8. The total term distribution of the UK

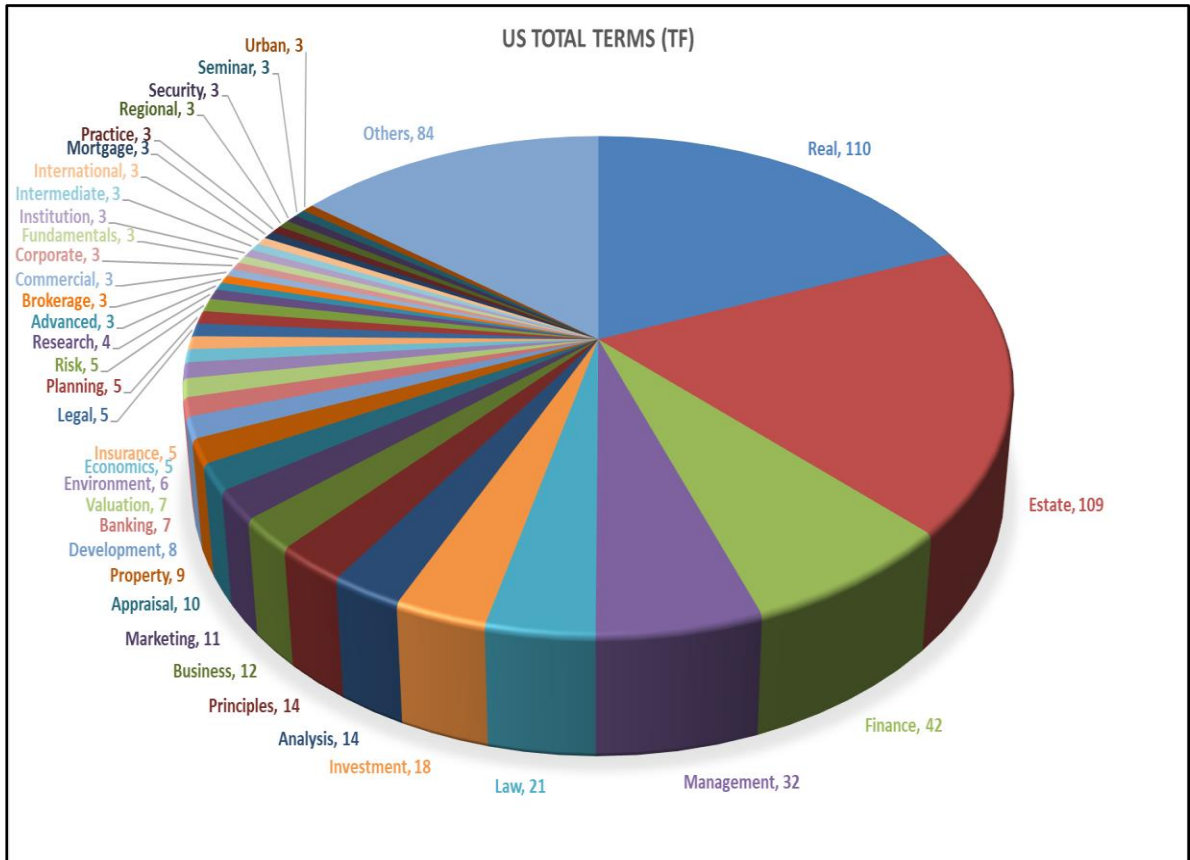


Figure 9. The total term distribution of the US

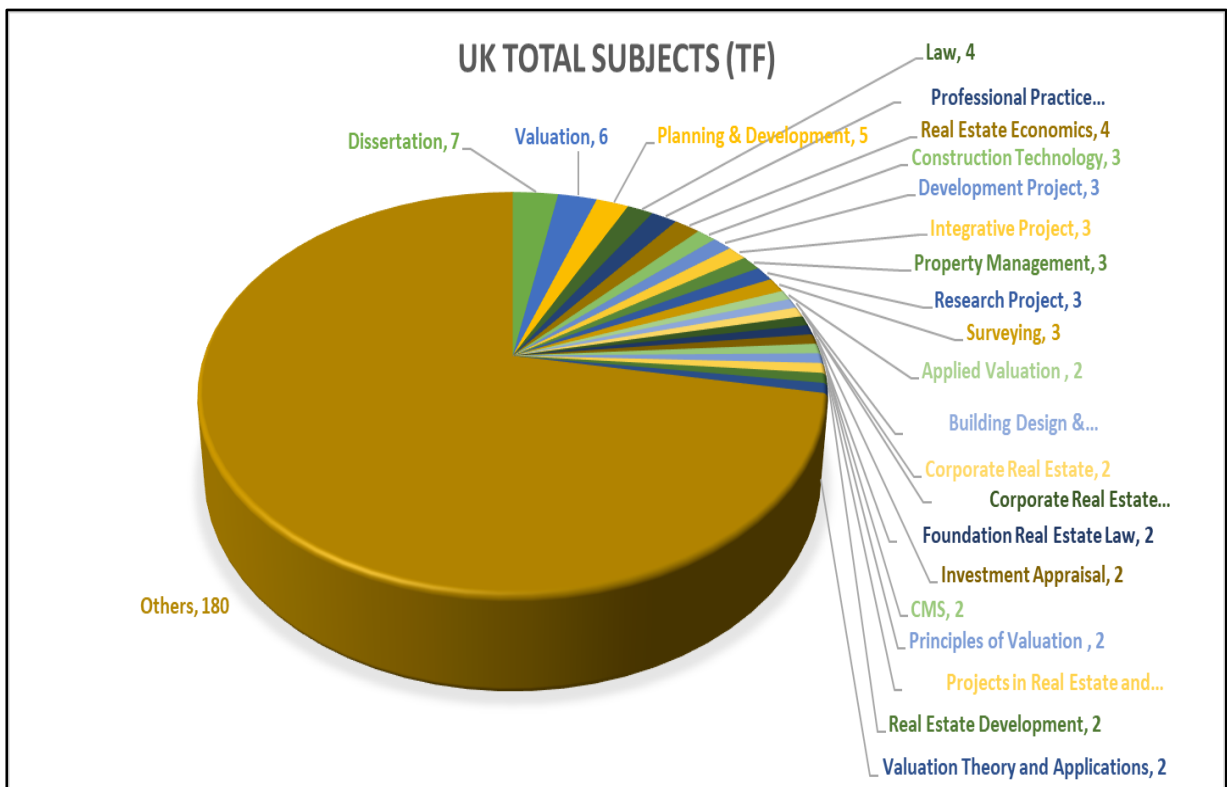


Figure 10. The total subject distribution of the UK

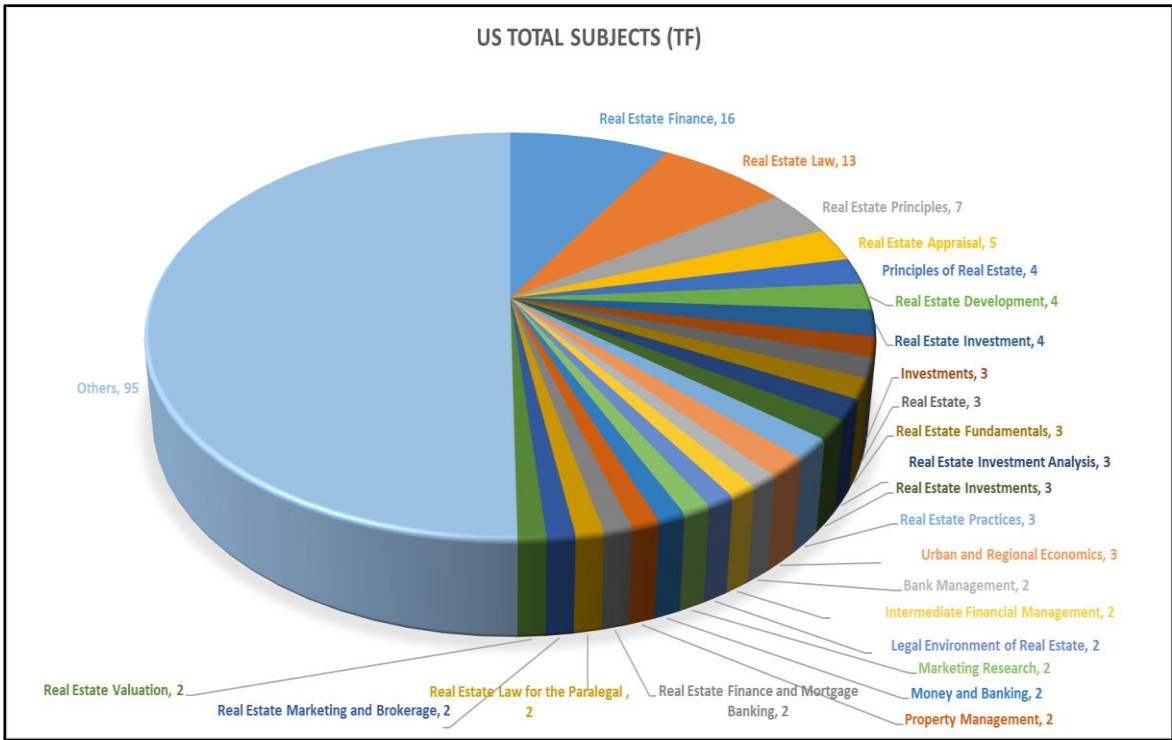
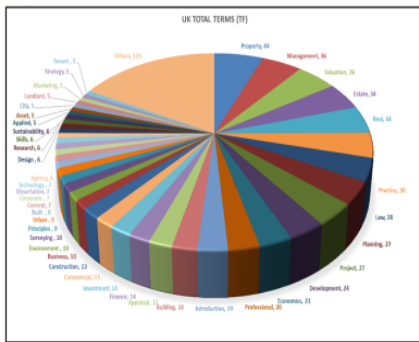
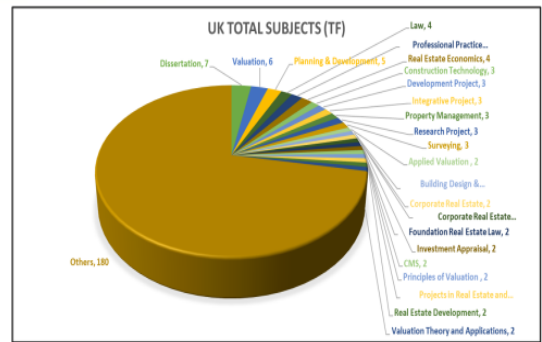


Figure 11. The total subject distribution of the US



(Results by term-based analysis proposed in this study)

UK case



(Results by subject-based analysis used by Shelton)

Figure 12 Comparing two methods in case of the UK

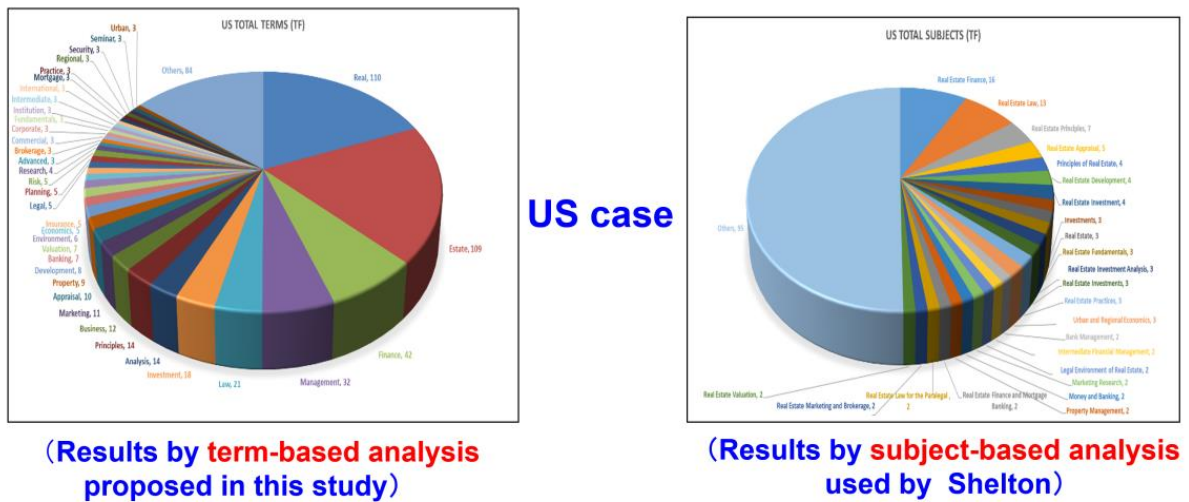


Figure 13 Comparing two methods in case of the US

The graphs made by the subject-based analysis shows that the numbers of extracted elements is significantly smaller than the graphs made by the term-based analysis. This is because there are diverse name variations on the similar subject as described in chapter 1.4. As such, there is a clear limitation in analyzing subjects for the reason that subject titles can offer an infinite number of combinations and some titles are unreasonably made because of the needs of the university such as hour restrictions and the requests of lecturers, etc.

In contrast, term-based analysis separates subject titles into minimal elements, which hint the subject contents commonly educated by many universities. The method proposed in this study can more accurately and efficiently extract the common contents of the UK and US. And it is also easier to get overall trend by a bird's-eye view. This clearly shows the superiority of our term-based analysis.

4.3.3 The limitation of term-based analysis proposed in this study

This study classifies terms under the assumption that same term, which is the basis of classification, always has the same meaning. Although our approach is advantageous for analyzing more efficiently and getting the overall trend, there are limitations in the meaning of terms, depending on the context of the connected terms or the country, may have different nuances or be interpreted as different meaning depending on the context of the connected terms or the country.

But, the limitations like ours are problems that occur frequently in everyday conversation. These limitations arise inevitably from the quantitative analysis of terms with qualitative nature that humans use to express their intentions. Further work will be involved in improving these shortcomings.

4.4 The Characteristics of the UK and US Real Estate education

4.4.1 From the viewpoint of subject distribution

Now, we have analyzed the curriculum of the UK and the curriculum of the US with the distribution and concentration of MS (Mandatory Subject).

Figure 14 is the graph of the frequencies of MSs opened at RICS-accredited UK universities and Figure 15 shows the frequencies of MSs opened at AACSB-accredited US universities.

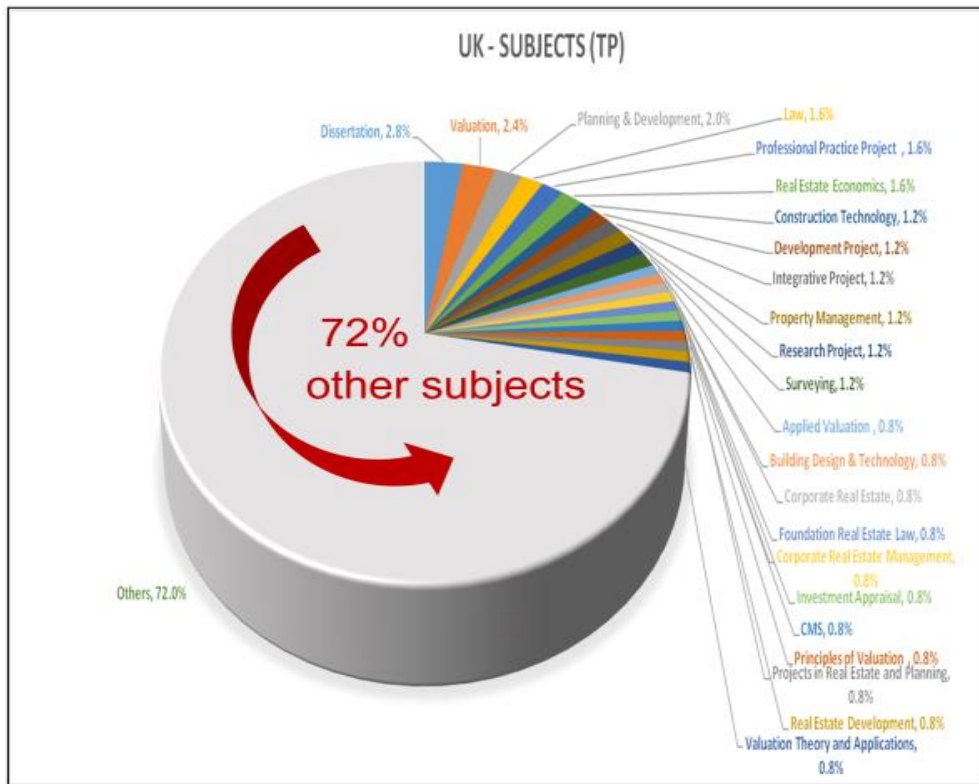


Figure 14. Distribution of subjects in the UK

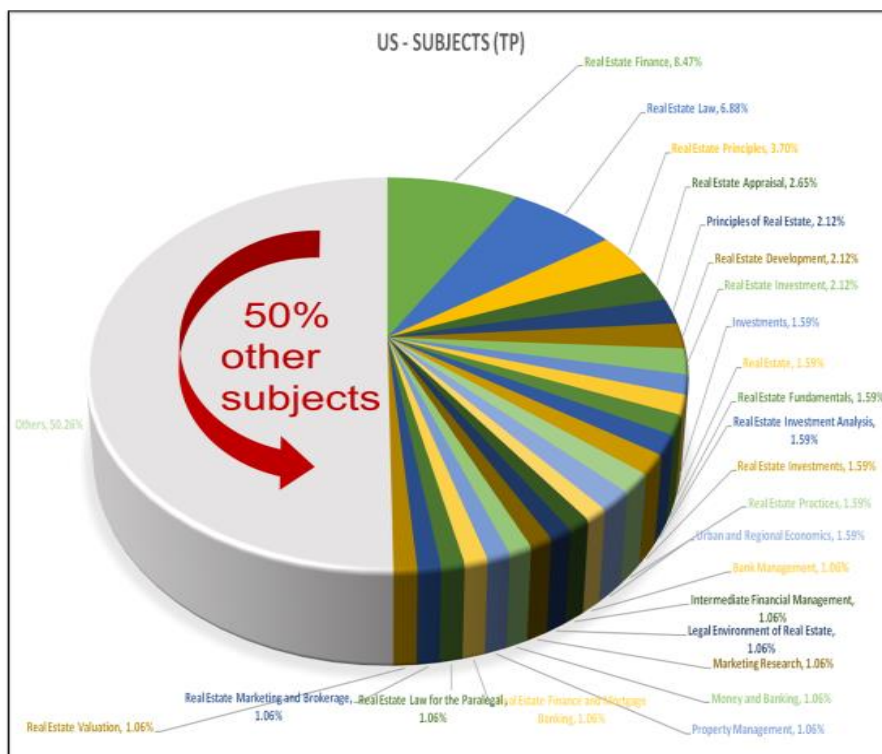


Figure 15. Distribution of subjects in the US

As shown in the Figure 14 and 15, we find that 72% of the 250 subjects in the UK are included in other subjects with a weight of less than 1%, while in the US, only 50% of the 189 listed subjects are classified as other subjects. This shows that the UK offers a variety of subjects in the curriculum, and the US focuses on some core subjects, especially those linked to the word of “Real Estate”.

As discussed in the chapter 2 on the history of real estate education in the UK, it can be interpreted that the real estate education in the UK has developed into curriculums aiming at cultivating talented specialists who can respond to various practices on various work site in its long history. Indeed, the general curriculum in the department of real estate in the UK emphasizes linkages to practice by incorporating three-year university education and one-year practical courses in the real estate industry as graduation requirements. In the case of students who do not choose a practical training course, they are replaced by writing a dissertation, and the percent of dissertation in figure 14 shows that this rule is adopted in various universities.

On the other hand, in the case of the US, as mentioned in the US's history of real estate education in chapter 3, Ford Pearson's recommendation and the needs of the US financial industry have led to the central focus of the curriculum of the real estate department in finance and investment. The subjects of appraisal and the subjects related to investment also rank high.

In addition, since many liberal arts are offered to first and second grade students in real estate education at four-year universities in the US, introductory subjects such as principle, which is close to basic education, are also ranked high. In this regard, real estate education in four-year colleges in the US is characterized by focusing on core subjects rather than providing a variety of subjects, and the principle level of liberal arts education is strong. Figure 15 shows these features. These features can be interpreted that the real estate education in the US has developed into curriculums aiming at cultivating generalists who are especially familiarly with finance and investment. These features are the results affected by Ford Pearson's recommendation and the needs of the US financial industry.

4.4.2 From the viewpoint of linked 2nd terms

Next, as another analysis for checking the characteristics of the UK and US real estate education, we examine the terms contained in the subjects linked with one specific term as an example.

As one example among many terms, we examine the terms contained in the subjects linked with “Law”. First, we collect the subjects that contain the term of “Law”. The results of collected subjects are shown in Table 8 and 9. We also analyze 2nd terms linked with “Law” via text mining method. The results that summarize terms linked with “Law” in the UK and US are shown in Table 10.

Table 8. Subjects containing “Law” in case of the UK

Subjects containing “Law” in case of the UK
Landlord and Tenant Law Practice
Law for the Built Environment
Law for Property and Planning
Valuation and Law
Property & Construction Business Law
Principles of Law and Organisations
Commercial Landlord and Tenant Law and Agency Practice
Practical Property Law 2
Property Law
Law for Surveyors
Law
Foundation Real Estate Law I (Contract)
Foundation Real Estate Law II (Tort)
Land Law
Landlord and Tenant Law
Law 1
Law 2
law and economics for the built environment
Law
Planning and Property Law
Property and Planning Law
General Introduction to Law
Introduction to Property Law
Planning Law and Practice
Applied Property Law

Law
Law
Law

Table 9. Subjects containing “Law” in case of the US

Subjects containing “Law” in case of the US

Real Estate Law
Real Estate Law
Business Law II
Real Estate Law
Environmental Law
Real Estate Law
International Environmental Law
Real Estate Law
Real Estate Law for the Paralegal
Real Estate Law for the Paralegal
Real Estate Law
Law of Real Property
Real Estate Law
Real Estate Law
Real Estate Law
Real Estate Law
Real Estate Law
Real Estate Law and Contracts
Real Estate Law and Brokerage
Real Estate Law
Real Estate Law
Real Estate Law
Real Estate Law
Business Law II
Real Estate Law
Environmental Law
Real Estate Law
International Environmental Law
Real Estate Law
Real Estate Law for the Paralegal
Real Estate Law for the Paralegal
Real Estate Law
Law of Real Property
Real Estate Law
Real Estate Law
Real Estate Law

Real Estate Law
Real Estate Law
Real Estate Law and Contracts
Real Estate Law and Brokerage
Real Estate Law
Real Estate Law

Table 10. Summarizing Terms linked with “Law” in the UK and US: 2nd Core Term Analysis

Terms linked with Law in the UK	TF	TP	Terms linked with Law in the US	TF	TP
Property	8	0.167	Real	18	0.409
Planning	4	0.083	Estate	17	0.386
Practice	4	0.083	Environmental	2	0.045
Landlord	3	0.063	Paralegal	2	0.045
Tenant	3	0.063	Brokerage	1	0.023
Built	2	0.042	Business	1	0.023
Environment	2	0.042	Contracts	1	0.023
Estate	2	0.042	International	1	0.023
Foundation	2	0.042	Property	1	0.023
Introduction	2	0.042			
Real	2	0.042			
Agency	1	0.021			
Applied	1	0.021			
Business	1	0.021)			
Commercial	1	0.021			
Construction	1	0.021			
Contract	1	0.021			
Economics	1	0.021			
General	1	0.021			
Land	1	0.021			
Organisations	1	0.021			
Principles	1	0.021			
Surveyors	1	0.021			
Tort	1	0.021			
Valuation	1	0.021			

In the UK, the terms linked with “Law” are diverse and highly specialized. On the other hand, in case of the US, the terms linked with “Law” are very limited and mostly the word of “Real Estate”. From these

Table 11, Table 12 and Table 13 show “Only terms in the UK”, “Terms to be inclined towards UK” and “Core Common Terms for clarifying the Characteristics of the UK” respectively.

Table 11. Only terms in the UK

Only Terms in the UK	US (TF)	US (TP)	UK (TF)	UK (TP)
Building	0	0	16	0.022
Surveying	0	0	10	0.014
Context	0	0	7	0.009
Dissertation	0	0	7	0.009
Technology	0	0	7	0.009
Sustainability	0	0	6	0.008
Landlord	0	0	5	0.006
Tenant	0	0	5	0.006
Applied	0	0	5	0.006
City	0	0	5	0.006

Table 12. Terms to be inclined towards the UK

Terms to be inclined towards UK	US (TF)	US (TP)	UK (TF)	UK (TP)
Property	9	0.015	44	0.060
Valuation	7	0.012	36	0.049
Practice	3	0.005	30	0.041
Project	1	0.001	27	0.037
Economics	5	0.009	21	0.028
Professional	1	0.001	20	0.027
Introduction	1	0.001	19	0.026
Construction	1	0.001	13	0.018
Commercial	3	0.005	13	0.018
Environment	6	0.010	10	0.014
Urban	3	0.005	9	0.012
Built	1	0.001	8	0.010
Corporate	3	0.005	7	0.009
Research	4	0.007	6	0.008
Agency	1	0.001	6	0.008
Design	1	0.001	6	0.008

Skills	1	0.001	6	0.008
Strategy	2	0.003	5	0.006
Asset	1	0.001	5	0.006

Table 13. Core Common Terms for clarifying the Characteristics of the UK

Core Common Terms	US (TF)	US (TP)	UK (TF)	UK (TP)
Property	32	0.055	36	0.049
Planning	42	0.072	14	0.019
Practice	21	0.036	28	0.038
Landlord	8	0.014	24	0.032
Tenant	18	0.031	14	0.019
Built	10	0.017	15	0.020
Environment	14	0.024	9	0.012
Estate	12	0.021	10	0.014
Foundation	32	0.055	36	0.049

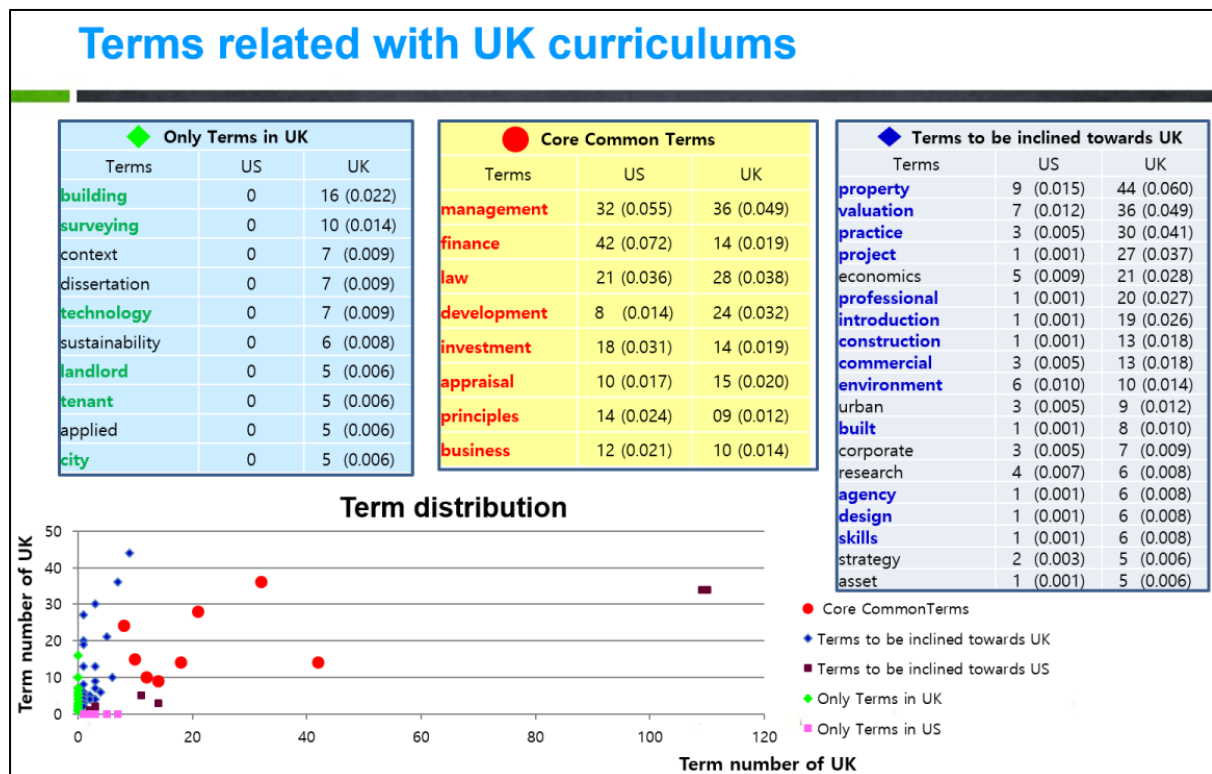


Figure 17. Terms related with the UK curriculums

The only terms and terms to be inclined towards each country are very important from the viewpoint of

showing the education characteristics of the each country. Core common terms that are popularly taught in both countries can be also important for judging each country's characteristic.

From these tables, the term "Property(44)" has the highest TF(Term Frequency) value in the UK. According to Shulte(2002)'s explanation [1], "Physical construction and management of buildings is property." In this respect, the term "Property" (44) is closely connected with the physical construction and management of buildings. In addition, the high frequency of terms such as "Management (36)", "Valuation(36)", "Practice(30)", "Planning (27)", "Project(27)", "Development(24)", and "Professional(20)" are ranked higher. These terms can be also said to be closely connected with physical aspects of real estate. In case of only terms in UK, "Building(16)", "Surveying(10)" and "Technology(7)" are also ranked. These terms implies that physical aspects are highly emphasized on real estate education. Thus, physical aspects on real estate can be seen to be the central concept of real estate education in the UK.

On the other hand, "Appraisal(15)", "Finance(14)" and "Investment(14)" are also seen in core common terms . From these terms, "Finance and Investment approach of US" seems to be penetrating the education of UK.

Similar opinion was seen in D'Arcy, E.; Taltavull, P. (2009) that "Recent years, strong shift toward the business school context of the US approach has been seen in the UK." [43]

The Figure 18 is the word cloud for terms in the real estate education curriculum of the US. The size of terms are written in proportion to the frequency of terms, just like the UK case in Figure 16.

Seminar	3	0.005	0	0
Essential	2	0.003	0	0
Income	2	0.003	0	0
Money	2	0.003	0	0
Paralegal	2	0.003	0	0
Topics	2	0.003	0	0
Writing	2	0.003	0	0

Table15. Terms to be inclined towards the US

Terms to be inclined towards US	US (TF)	US (TP)	UK (TF)	UK (TP)
Estate	109	0.186	34	0.046
Real	110	0.188	34	0.046
Analysis	14	0.024	3	0.004
Marketing	11	0.019	5	0.006
Regional	3	0.005	2	0.002
International	3	0.005	1	0.001
Decision	2	0.003	1	0.001

Table 16. Core Common Term for clarifying the Characteristics of the US

Core Common Terms	US (TF)	US (TP)	UK (TF)	UK (TP)
Management	32	0.055	36	0.049
Finance	42	0.072	14	0.019
Law	21	0.036	28	0.038
Development	8	0.014	24	0.032
Investment	18	0.031	14	0.019
Appraisal	10	0.017	15	0.020
Principles	14	0.024	9	0.012
Business	12	0.021	10	0.014

Terms related with US curriculums

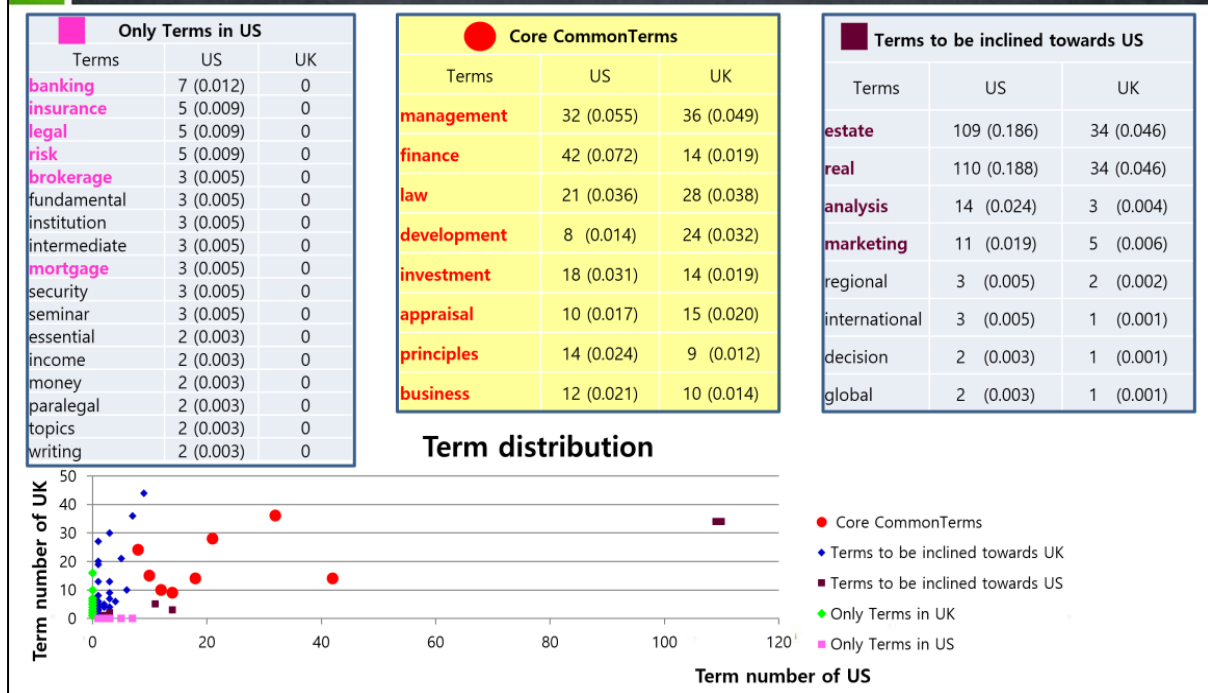


Figure 19. Terms related with US curriculums

The only terms, terms to be inclined towards the US, core common terms are used for judging the characteristic of the US, just like the UK case.

The high frequency of terms such as “Finance(42)”, “Management(32)”, “Law(21)”, “Investment(18)”, “Analysis (14)”, “Business(12)”, “Marketing(11)” and “Appraisal(10)” implies that the topics related with “Finance and Investment” are highly emphasized on real estate education. In case of only terms in the US, “Banking(7)”, “Insurance(5)”, “Risk(5)”, “Brokerage(3)” and “Mortgage(3)” are also ranked. These terms are also closely connected with the business related with “Finance and Investment”. Thus, finance and investment in a business environment can be seen to be the central concept of real estate education in the US. In addition, the terms “Real(110)” and “Estate(109)” have the highest term frequency values in the US, which is thought to be attributed to the wide-education of basic knowledge related to real estate field. “Principles(14)” is also high ranked. This implies that basic knowledge related to real estate field are provided a lot in the undergraduate courses of the US.

4.5 Verifying Hypotheses about the Characteristics of UK and US Real Estate Education

4.5.1 Verifying Hypotheses about the Characteristics of the UK Real Estate Education

In chapter 2, we made a hypothesis about the main characteristics of the UK,

『 “The main-characteristics of real estate education in the UK can be said to have been practiced with center on the physical aspects having roots in surveyor's training for lords' estate management.” 』

Considering what we've analyzed, the appearance of terms listed in high rank supports the proposition that the main-characteristics of real estate education in the UK referred to in chapter 2.1.

The hypothesis on the main-characteristics of real estate education in the UK referred to in chapter 2.1. can be judged as “it's almost right.” But, we think modifying the hypothesis as below will be more appropriate.

『 “The main-characteristics of real estate education in the UK can be said to have been practiced with center on the physical aspects having roots in surveyor's training for lords' estate management.” 』

However, recent years, “Finance and Investment approach of the US” seems to be penetrating the education of the UK.』

4.5.2 Verifying Hypotheses about the Characteristics of US Real Estate Education

In chapter 3, we made a hypothesis about the main characteristics of the US,

『 “The main-characteristics of real estate education in the US can be said to have been practiced with focus on finance and investment in the business environment based on the free transfer of land ownership dating to before independence.” 』

Considering what we've analyzed, the appearance of terms listed in high rank supports the proposition

that the main-characteristics of real estate education in the US referred to in chapter 3.1.

The hypothesis on the main-characteristics of real estate education in the US referred to in chapter 3.1. can be judged as “it's almost right.” But, we think modifying the hypothesis as below will be more appropriate. But, we think modifying the hypothesis as below will be more appropriate.

『“In case of the real estate education of the US, the main-characteristics can be said to have been practiced with focus on finance and investment in the business environment based on the free transfer of land ownership dating to before independence. And, “Basic knowledge education related to real estate at the liberal art level is also placed a lot of value on, which have aimed developing generalists who have a foundation at real estate fields.”』

4.6 Finding out the Mainstream and picking up the BOK of Real Estate Education based on Core Terms

As explained in the introduction, the UK and US have historically led real estate education and the current globalization of real estate education is also intuitively being led by the RICS in the UK and AACSB-International in the US. Based on this status, this study try to find out the mainstream of current real estate education with respect to globalization by using the common core terms of mandatory subject titles of the real estate departments accredited by the RICS in the UK and AACSB-International in the US. Figure 14 shows the total term distribution of the UK and US.

The center parts are core common terms that are extensively taught in the UK and US. Core common terms are “Management”, “Finance”, “Law”, “Development”, “Investment”, “Appraisal”, “Principles” and “Business”. Only terms are on the axis. Only the terms of the UK are on the vertical axis and only terms of the US are on the horizontal axis. The terms to be inclined towards the UK and US are located in the middle parts of center parts and axes. The terms to be inclined towards the UK are located in the middle parts of center parts and vertical axis and the terms to be inclined towards the US are located in the middle parts of center parts and horizontal axis.

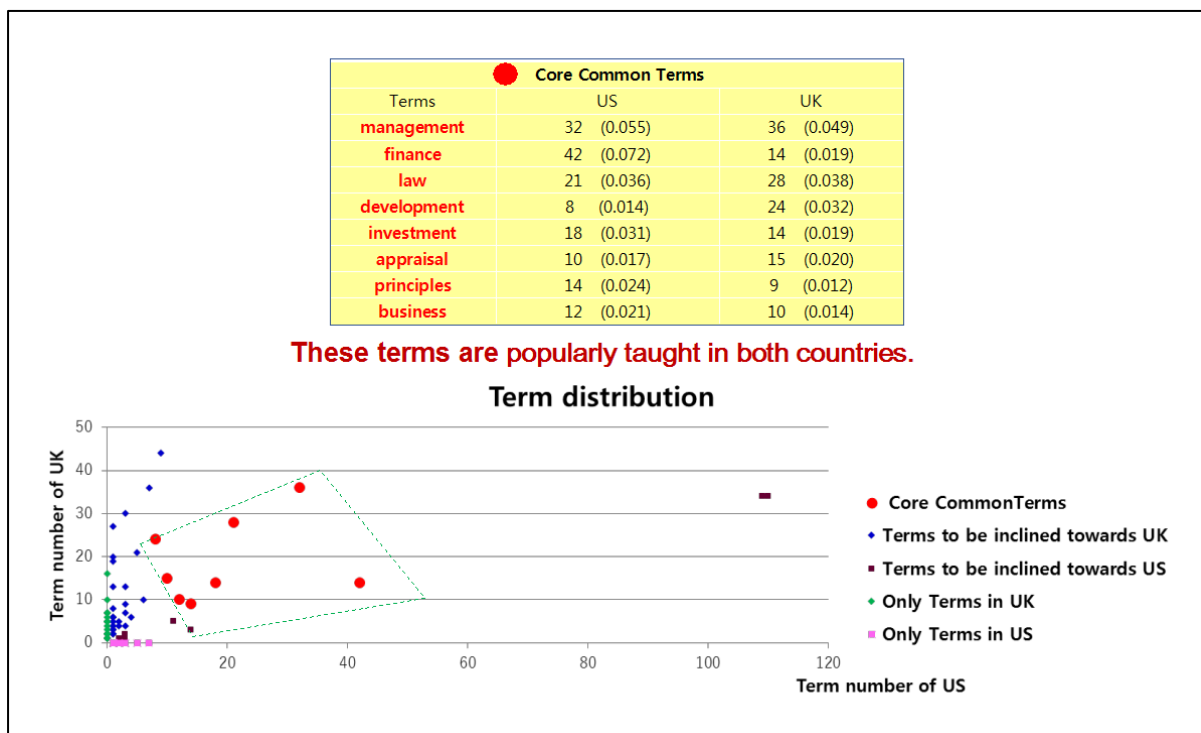


Figure 20. Total term distribution of the UK and US

Table 17 shows main core terms of common core terms in the UK and US.

Table 17. Core Common Terms

Core Common Terms	US (TF)	US (TP)	UK (TF)	UK (TP)
Management	32	0.055	36	0.049
Finance	42	0.072	14	0.019
Law	21	0.036	28	0.038
Development	8	0.014	24	0.032
Investment	18	0.031	14	0.019
Appraisal	10	0.017	15	0.020
Principles	14	0.024	9	0.012
Business	12	0.021	10	0.014

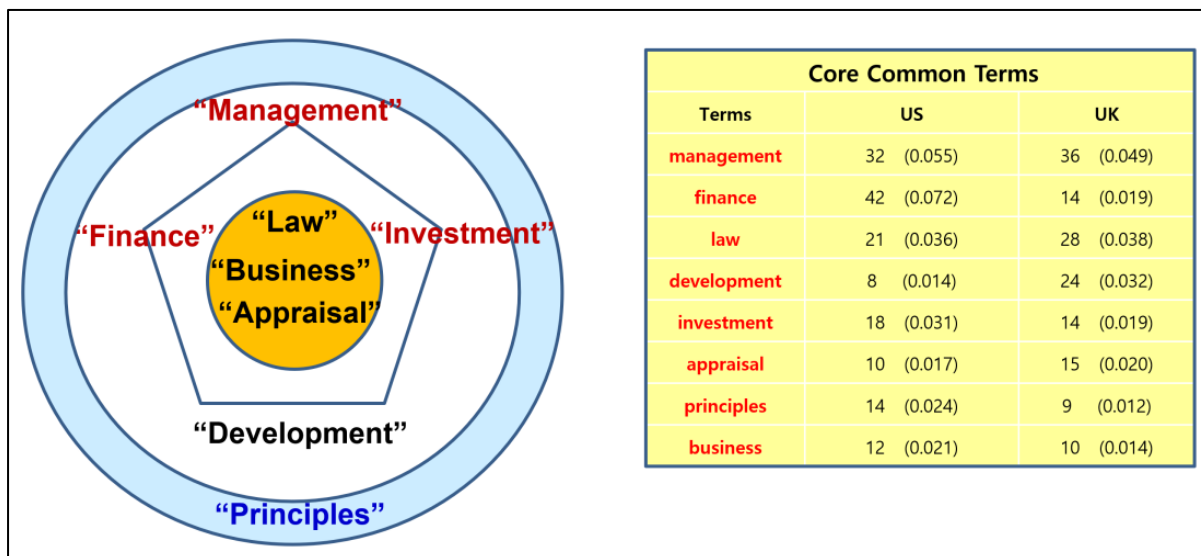


Figure 21. Relationship image among core common terms

Core common terms located in the center of Figure 21 that are commonly high important terms in the departments accredited by the RICS and AACSB-International. They give us important insights in search of the mainstream of real estate education in the current global age.

Among core common terms, “Law”, “Business”, “Appraisal” and “Principles” are terms involved many fields. In this sense, we think these terms appear so frequently in the subject titles and have become core common terms. It is a natural thing that these terms become core common terms. So, for finding out mainstream of current age, we pay attention to the other terms such as “Management” “Finance” “Investment” and “Development”.

From these terms, we can reason two points like as belows,

Now “Management age” after having passed “Development age”. From the fact that the number of “Management(US=32, UK=36)” is much lagerer than that of “Development(US=8,UK=24)”, we can reason like as above.

Another point on the current mainstream of real estate education is that “Finance” and “Investment” are key terms of recent real estate education. “Finance” and “Investment” have a root in the US. The

background of these terms extensively taught is that the business school context in the US is also accepted by many real estate departments in the UK.

We think these two points are the mainstream of current real estate education.

And, core common terms not only provide the hints of the mainstream but also insight into the BOK of real estate field. A Body of Knowledge (BOK) is the complete set of concepts, terms and activities that make up a professional domain, as defined by the relevant learned society or professional association.

In this study, we attempt to pick out the BOK inherent in the current curriculum by analyzing the subjects accredited by RICS and AACSB-International. The core common of “Management”, “Finance”, “Law”, “Development”, “Investment”, “Appraisal”, “Principles” and “Business” are also thought to be the BOK, which are inherent in the current curriculum.

For a long time, many real estate scholars have been discussing the BOK in real estate like as follows.

In the BOK session at the annual ARES meeting in 1992 (Epley,1991[4];Isakson,1991[38];Dasso and Nourse,1991[39]), questionnaire results on the BOK was concluded as follows. Undergraduate curriculums require students to complete courses in the areas of “Principles”, “Real Estate Finance”, “Law” and, “Valuation”[4]. After Epley(1996) surveyed the text and teaching books in real estate, he noted they typically include a course in “real estate principles”, “Finance”, “Law” and, “Appraisal”[40]. Shelton and Howard (2002) selected “Real estate principles”, “Finance”, “Appraisal” or “Valuation”, “Law”, and “Investments” as key Terms for a typical undergraduate program[41]. Roulac (2016) chose “Finance”, “Investment”, “Appraisal”, and “Development” as key Terms[42].

Comparing our study’s BOK of other studies, our results are very similar to the four studies’ results except “Management” and “Business”. From these results, the term analysis method used in this study is expected to be a very useful method for picking up the BOK in real estate and to be applied to various other fields. Further analysis of the subjects and core terms collected over a wide range of educational institutions will be able to extract a widely acceptable BOK of real estate.

From our results, we regard core common terms written below that are extensively taught in both countries as BOK.

: “Management”, “Finance,” “Law,” “Development”, “Investment”, “Appraisal“, “Principles” and “Business” that are the most important common concepts extensively taught in the UK and US.

4.7 Summary

In chapter 4, the main objects of this chapter are in finding out the mainstream of the current global age and picking up the BOK of real estate education. Core Term Analysis was conducted to for achieving these objects. First, in Chapter 4.1, we showed the data used in this study and the list of the departments of the UK and US universities that were selected for analysis. Next, Chapter 4.2 explained the core term analysis method using the text mining. Chapter 4.3 showed the extracted results of core subjects and terms of the UK and US. The results clearly showed the superiority of our term-based analysis. But the limitation of our term-based analysis was also pointed.

In chapter 4.4, the characteristics of the UK and US real estate education were described from three view points; the view point of subject distribution in chapter 4.4.1, the view point of linked 2nd terms in chapter 4.4.2 and the view point of core terms in chapter 4.4.3.

Especially in chapter 4.5, we verified the hypotheses about the Characteristics of the UK and US real estate education made in chapter 2 and 3. Based on the results of verification, we modified the hypotheses for a more appropriate description of the characteristics of the UK and US.

For comparison with our research results, we give examples of other studies about the main characteristics of the UK and US. Roy T. Black and Joseph S. Rabianski(2003), the main characteristics of the UK and US were mentioned that “Academic real estate programs in the United States are often housed

in business schools and most often have a finance and investments focus, while programs in the United Kingdom, Australia and New Zealand may be housed outside the business school and focus on the built environment⁹, a broader program that encompasses physical as well as financial concepts.”[11]. In Karl-Werner SCHULTE (2005) [2], the main characteristics of the UK and US were mentioned that “As a consequence real estate education is very different throughout the world. An encompassing comparison and analysis of real estate education on all continents of the world can be found in Schulte (2002a).

According to Schulte and Schulte-Daxboek (2000), the concepts can be differentiated into:

- The “interdisciplinary approach” (which is practiced eg in Continental Europe),
- The “surveying approach” (which is typically found in the UK and the other countries of the British Commonwealth)
- The “investment and finance approach” (which is dominating in the USA)

These studies’ points are similar to our judgment about the main characteristics of the UK and US.

In chapter 4.6, we also found out the mainstream and picking up the BOK of Real Estate Education based on core terms. The mainstreams were found out in this study like as below. Now is “the age of Management” after “the age of Development” has passed and “Finance” and “Investment” are the key terms of recent real estate education.

On the other hand, many real estate scholars have been discussing the BOK of real estate for a long time. In chapter 4.6, the term analysis method proposed in this study was proved to be a very useful method for picking up the BOK of real estate.

In addition, there are terms to pay special attention to. They are the term “History” (0.001) in the UK and the term “Ethical” (0.001) in the US. Although TPs’ values of the two terms are very low, they are important terms that reflect the differences of educational background and the business environment.

⁹ All the physical things constructed by humans as aids to living.(from : WiktionaryURL <http://en.wiktionary.org/> referred in 2019.6.10)

Chapter 5. IDENTIFYING JAPAN’S SPECIFITIES BY PROXIMITY ANALYSIS

In this chapter, we try to identify the characteristics of Japan real estate education from the view point of core terms and core term comparison among the UK, the US and Japan by using proximity analysis.

5.1 Core terms in Japan Real Estate Education

As mentioned in the Introduction chapter, despite many countries being classified as an eclectic model, not many studies have been conducted on the contents and characteristics. In this context, this paper firstly conducted an international comparative survey on the characteristics of real estate education in Japan. Specifically, we try to identify Japan's specificities of real estate education by the core terms of current subjects opened by the department of real estate in Japan.

Although in 2016 there are seven universities that provide real estate related programs in the graduate course, Meikai University only operates a full time bachelor program of real estate in the undergraduate course. This is why the only Meikai University is considered in this study. Mandatory subjects¹⁰ of Meikai University as the data of Japanese real estate departments were analyzed by using the analytical methods described in chapter 4.2, and as a result core terms were selected from a total 57 terms extracted from 13 Mandatory subjects. The results of core terms are summarized with TP values in Table 18.

Table 18. Summary of Japan core terms

[Core terms based on TP of Mandatory subjects in Japan]
Real (0.140), Estate (0.123), Science (0.070), Seminar (0.070), Introduction (0.053), Law (0.053), Practice (0.053), Transaction (0.053), Workshop (0.053), Building (0.035), City (0.035), Graduation (0.035), Property (0.035), Basic (0.018), Business (0.018), Career (0.018), Designing (0.018), Fundamental (0.018), Game (0.018), Mathematics

¹⁰ The data were obtained from the Meikai University Affairs Officer.

(0.018), Microeconomics (0.018), Planning (0.018), Statistics (0.018), Technology (0.018)

[Only Japan Core Terms] (Not appear in the UK and US)

Science (0.070), Workshop (0.053), Graduation (0.035), Basic (0.018), Game (0.018), Statistics (0.018),
Microeconomics (0.018)

[Japan Core Terms] (appear in the UK or US)

Real (0.041), Estate (0.123), Seminar (0.070), Introduction (0.053), Law (0.053), Practice (0.035), Property (0.035),
Business (0.018), Career (0.018), Designing (0.018), Planning (0.018)

As shown in Table 18, the terms “Real“ (0.140) and “Estate”(0.123) had the highest TP values terms, which is thought to be attributed to the wide-education of basic knowledge related to real estate field.

In addition, the high proportion of terms such as “Science” (0.070) implies that science is highly emphasized on real estate education in Japan. This can be regarded as one of the major features of real estate education in Japan. The next highest proportion terms are “Seminar” (0.070), “Introduction” (0.053), “Law” (0.053), “Practice” (0.053), “Workshop” (0.053). These results show that the curriculum emphasizes active learning rather than passive theoretical education and that it is also strengthening the education of basic principles. Also, the fact that “Law” (0.053) is ranked at the highest position can be interpreted as one of the important educational goals to acquire qualifications related with real estate. Next, the words “Building” (0.035), “City” (0.035), and “Property” (0.035) appear in the next highest order. It can be seen that there is also a considerable amount of education on physical things that constitute real estate.

The only terms that do not appear in the UK and US, but only in Japan are summarized in Table 18 as “Only terms of Japan”, which includes “Science” (0.070), “Workshop” (0.053), “Graduation” (0.035), “Basic” (0.018), “Game” (0.018), “Statistics” (0.018), and “Microeconomics” (0.018). From these terms, the following characteristics of real estate education in Japan can be saidlike as below. "Science" (0.070) has the highest proportion among the only terms of Japan, which shows that the scientific approach is

important in Japanese real estate sciences. Next, “Workshop” (0.053) is considered to be a feature of the Japanese real estate education system which emphasizes the field experience by emphasizing the participation of the students. The fact that “Graduation” (0.035) is included in the mandatory subjects indicates that an advancement program is provided for graduates.

From the explanation described above, the education characteristic of the department of real estate sciences in Meikai University is thought to be taught over a wide range-education of basic knowledge related real estate like the US. In addition, “Science” (0.070) is one of the greatest features of Japanese real estate education in that it is a word that does not appear in the mandatory subjects in the UK and US. And the thing that one of the important educational goals is to acquire qualifications related with real estate can be interpreted from the fact that “Law” (0.053) is ranked at high.

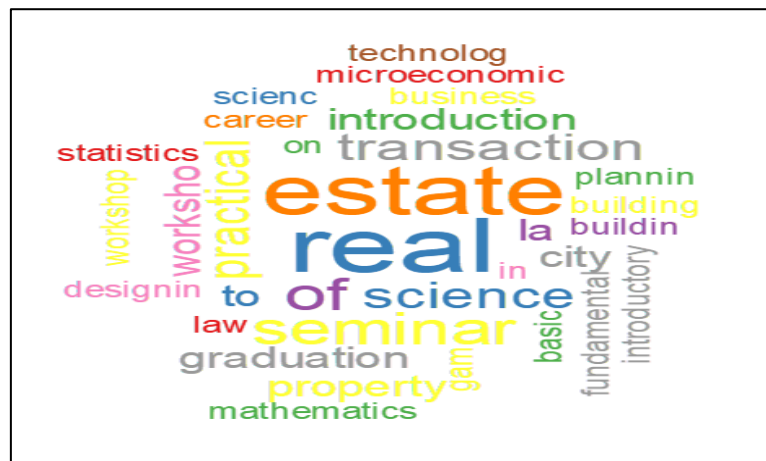


Figure 22. The Specificities of core terms in JAPAN word cloud

5.2 Proximity analysis method for Core term comparison among the UK, US, and Japan

In order to identify whether the current specificities of real estate education of Meikai University as the representative Japan real estate education, we modify this similarity index and use it as an index to evaluate the similarity of curriculum in each country. In other words, the subjects of the UK, the US and

Japan are divided into terms and a feature vector is obtained based on the term list to express the curriculum of each country. Finally, the similarity between each term pair (the UK and US, the UK and Japan, the US and Japan) is calculated using the extracted feature vector.

In general, the subject name are consisted by the terms that describes the subject contents and are selected so that the contents are clearly displayed. Therefore, the terms included in the subject titles can be said to represent the knowledge contents to be taught in the subject, and furthermore, it can be an important index indicating the education direction of the whole curriculum. This is the reason why we judge the similarity of the curriculum of each country based on the terms of the curriculum in this study.

In this study, as a concrete method for proximity analysis between the sets of terms extracted from the subject titles in the UK, US, and Japan, the cosine measure is used [44]. This Proximity measure is designed to have a value between 0 (zero) and 1 (one) and high along with highness in similarity between the two countries. The Term Frequency (TF) and Term Proportion (TP) both can be utilized to calculate the proximity of the curriculums. In fact, because the number of subjects considered differs from country to country, the TP representing the ratio of each term to the total number of words is more logical for calculating the Proximity. Due to reasons like this, we use TP for calculating the Proximity.

The process of Proximity calculation is as follows. First, we assign the sets of TPs of UK, US and Japan the letters “A,” “B,” and “C,” respectively, and assumed the union of the three sets to be T (=A ∪ B ∪ C). If the number of elements in the set T is m , then the terms of each country are listed in the same order as below for the Proximity analysis. This is defined as a vector \vec{u}_i in m dimensional product space for each country (Equation (1)). Because m is the number of elements in the union of the three sets, the number of terms in each country is smaller than or equal to m . If i country has no j term in their list, TP_{ij} becomes 0 (zero).

$$\vec{u}_i = (TP_{i1}, TP_{i2}, \dots, TP_{im}), i = \text{UK, US, JP} \quad (1)$$

Proximity (\vec{u}_i, \vec{u}_j) is calculated by Equation (2) [44],

Using the cosine of the two target countries (\vec{u}_i, \vec{u}_j).

$$proximity(\vec{u}_i, \vec{u}_j) = \text{Cos}(\vec{u}_i, \vec{u}_j) = \frac{\vec{u}_i \cdot \vec{u}_j}{\|\vec{u}_i\| \|\vec{u}_j\|} \quad (2)$$

$$\text{Where } \vec{u}_i \cdot \vec{u}_j = \sum_{k=1}^m (TP_{ik} \times TP_{jk}),$$

$$\|\vec{u}_i\| = \sqrt{\sum_{k=1}^m (TP_{ik})^2}, \quad \|\vec{u}_j\| = \sqrt{\sum_{k=1}^m (TP_{jk})^2}$$

Here is an example to help readers understand. In the UK, the frequencies of the terms “Real”, “Finance”, “Practice”, “Banking” are 34, 14, 30, 0, then the number of the total frequency becomes 78. Similarly, in the case of the US, the frequencies of the terms and the total frequency become 110, 42, 0, 7, and 159. Based on these figures, TPs and characteristic vectors for the UK and US, $\vec{u}_{uk}, \vec{u}_{us}$ can be determined as follows.

$$\vec{u}_{uk} = (0.436, 0.179, 0.385, 0), \quad \vec{u}_{us} = (0.692, 0.264, 0, 0.044)$$

Finally, the Proximity between the two countries is calculated as follows.

$$\begin{aligned} proximity(\vec{u}_{UK}, \vec{u}_{US}) &= \frac{\vec{u}_{UK} \cdot \vec{u}_{US}}{\|\vec{u}_{UK}\| \|\vec{u}_{US}\|} \\ &= \frac{0.436 \times 0.692 + 0.179 \times 0.264 + 0.385 \times 0 + 0 \times 0.044}{\sqrt{0.436^2 + 0.179^2 + 0.385^2 + 0^2} \times \sqrt{0.692^2 + 0.264^2 + 0^2 + 0.044^2}} = 0.773 \end{aligned}$$

By analyzing all the words in each country with the method described above, the Proximity between the countries can be determined.

Now, a proximity analysis through comparing the terms among the UK, the US and Japan perform as an

effort to identify the current specificities of real estate education in Japan. The Proximity analysis results for all sets of the UK, US and Japan are shown in Table 19. The Proximity of Japan to the US is highest among three results. The Proximity of Japan to the UK is lower than that of the UK to the US.

This can be interpreted as in the Japanese real estate education curriculum, a wide range-education of basic knowledge related to real estate field is taught, similar to the US, which have aimed developing generalists who have a foundation at real estate fields.

This result may be not a phenomenon confined to Japan, and it seems that the effects of the US approach are similar in the European, Asian and African countries, which are generally regarded as the countries of eclectic models.

Table 19. Proximity analysis results among the UK, US and JP

UK - US	UK - JP	US - JP
0.5924	0.5264	0.7063

5.3 Summary

In Chapter 5.1, we identified the education characteristics of the real estate sciences in Meikai University as the representative Japan Real Estate Education by using the term extraction program explained in Chapter 4.2. As the result on real estate education of Meikai University, a wide range-education of basic knowledge related to real estate field are taught like the US. In addition, “Science” is one of the greatest features of Japanese real estate education in that it is a word that does not appear in the mandatory subjects in the UK and US. Also, the fact that “Law” is ranked at the top can be interpreted as one of the important educational goals to get qualifications related with real estate.

In Chapter 5.2, we conducted a proximity analysis to identify whether Japanese education is more similar to the UK or the US education. The Proximity of Japan to the US is highest among three results. This can be interpreted as the context of the US approach has been affecting the Japanese real estate education curriculum as part of the globalization that the United States have been leading. This result may be not a phenomenon confined to Japan, and it seems that the context of the US approach is also affecting the real estate education curriculum of the European, Asian and African countries, which are generally regarded as the countries of eclectic models.

Chapter 6. CONCLUSIONS AND FUTURE WORKS

6.1 Conclusions

The main objectives of this research are to identify the characteristics of real estate education in the UK and US and provide basic information for designing the real estate education. The study results of this paper are summarized as follows:

- First, we clarified the characteristics of real estate education in the UK and US via the hypotheses made by the review of the literatures on historical developments and the verification by the terms extracted from the current subject titles of real estate departments accredited by the RICS in the case of UK and AACSB-International in the case of US.

The characteristics clarified in this study are summarized like as below.

“In case of the real estate education of the UK, 『“The main-characteristics of real estate education in the UK can be said to have been practiced with center on more specific and practical education with an emphasis in the physical, which has aimed developing specialists who can practice in the area of expertise.”But recent years, “Finance and Investment approach of US” seems to be penetrating the education of UK.』

『“In case of the real estate education of the US, the main-characteristics can be said to have been practiced with focus on finance and investment in the business environment based on the free transfer of land ownership dating to before independence. And, “Basic knowledge education related to real estate at the liberal art level is also placed a lot of value on, which have aimed developing generalists who have a foundation at the real estate field.』

- Second, we found out the mainstream of current real estate education.

The mainstreams found out in this study are summarized like as follows.

『Now is “the age of Management” after “the age of Development” has passed and “Finance” and “Investment” are key terms of recent real estate education.』

- Third, we also picked out the Body of Knowledge (BOK) of current real estate education.

The BOK picked out in this study is summarized like as below.

『The Body of Knowledge (BOK) of current real estate education is “Management”, “Finance,” “Law,” “Development”, “Investment”, “Appraisal“, “Principles”, and “Business”.』

- Fourth, we identified the specificities of the real estate education of Japan among the UK, the US and Japan. The specificity identified in this study is summarized like as below.

The Proximity of Japan to the US is highest among the UK, the US and Japan. This can be interpreted as in the Japanese real estate education curriculum, a wide range-education of basic knowledge related to real estate field is taught, similar to the US, which have aimed developing generalists who have a foundation at real estate fields.

『The real estate education of Japan is is taught, similar to the US, which have aimed developing generalists who have a foundation at real estate fields.』

- Finally, although there was no quantitative analysis in this study, the subjects related to the terms of “History” and “Ethical” should be considered more important, especially considering the current era of global financial crises and the current era of financial services getting more and more complicated.. In addition, subjects focusing on entrepreneurship and negotiation, as well as operational abilities for use in construction projects, should be emphasized in the future.

6.2 Future Works

However, this study has limitations.

- As a first limitation of this study, the mainstream and the BOK of real estate education were extracted with the core terms of the curriculum required in the real estate departments, which are limited to the departments accredited by the RICS and AACSB. As future work, it is expected that the subjects and core terms collected over a wide range of educational institutions will be able to extract a widely acceptable mainstream and BOK of real estate field.
- Another limitation of this study, we classified words under the assumption that same term, which is the basis of classification, always has the same meaning. However, this method has limitations that the meaning of each word may have different nuances or can be interpreted in different meaning depending on the context of the connected terms or the country. In future work, we hope to improve these limitations by finding better methods.
- One more limitation of this study, the term-based analysis proposed in this study has the superiority in the analysis of education contents but did not provide any ideas about “How is it taught in the class?”. “How it is taught in the class” is also an important topic. In future work, we also hope to improve these limitations by expanding this study.

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Appendix A

The 250 Mandatory Subjects of the UK Real Estate and courses Accredited by the RICS (2016)

Subject	University	Dep. (Program/School)	Degree	Speciality/Major
Principles of Valuation	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Professional Practice Project	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Landlord and Tenant Law Practice	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Professional Practice Project 3	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Inter Professional Project	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Professional Practice and Managerial Skills	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Professional Practice Project 1	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Professional Practice Project 2	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Honours Research Project	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Real Estate Economics	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Business and Accounting	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Building Construction and Inspection	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Law for the Built Environm	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Planning and Development Appraisal	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Residential Surveying	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Law for Property and	Birmingham City	Birmingham School of the	BSc Hons	Real Estate

Planning	University	Built Environment		
Applied Valuation	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Property Investment and Finance	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Corporate Real Estate Management	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Portfolio Decision Making	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Advanced Applied Valuation	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Valuation and Law	Birmingham City University	Birmingham School of the Built Environment	BSc Hons	Real Estate
Principles of Economics	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Dissertation	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Building Design & Technology	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Building Engineering & Construction Maths	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Surveying	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Property & Construction Business Law	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Building Economics	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Building Design & Technology	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Planning & Development	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Surveying (Property Management)	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Valuation	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Surveying (Conservation)	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying

Development Appraisal	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Planning & Development	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Investment Appraisal	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Valuation	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Planning & Development	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Project Evaluation	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Sustainable Development	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Valuation	Edinburgh Napier University	School of Engineering and the Built Environment	BSc Hons	Real Estate Surveying
Principles of Valuation and Appraisal	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Principles of Law and Organisations	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Planning and Development Practice	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Commercial Landlord and Tenant Law and Agency Practice	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Professional Practice in Context	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Research Project	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Context of Sustainable Real Estate Management	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Property Construction and Inspection	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Valuation and Appraisal in Context	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Commercial Real Estate Management	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Advanced Investment	Kingston University	Real Estate Management	BSc Hons	Real Estate Management

Strategy and Finance				
Strategic Commercial Asset Management	Kingston University	Real Estate Management	BSc Hons	Real Estate Management
Development Projects	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Corporate Property Project	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Practical Property Law 2	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Property Market Project	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Dissertation	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Business Management	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Maintenance and Facilities Management	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Valuation Theory and Investment	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Building Pathology and Dilapidations	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Land Management	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Valuation Theory and Applications 2	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Construction Economics and Management	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Property Law	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Real Estate	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Construction Technology	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Valuation Theory and Applications 1	Liverpool John Moores University	School of the Built Environment	BSc Hons	Real Estate Management and Business
Principles of Valuation	Northumbria	School of the Built and	BSc Hons	Real Estate

	University	Natural Environment		
Corporate Occupiers Project	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Interdisciplinary Project	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Professional Surveying Skills Project	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Dissertation	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
The Evolution of the Built Environment	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Construction Technology	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Law for Surveyors	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Business And Economics For Surveyors	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Career And Professional Development	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Urban Planning And City Development	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Applied Valuation	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Property Asset Management	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Property Marketing And Agency	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Surveying Buildings	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Real Estate Economics	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Commercial Real Estate Appraisal	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Real Estate Development	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Compulsory Purchase And Compensation	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate

Corporate Real Estate Management	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Real Estate Investment And Finance	Northumbria University	School of the Built and Natural Environment	BSc Hons	Real Estate
Property Development: Principles and Practice	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Research Project	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Surveying Skills	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Professional Academic and Business Skills	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Economics and Valuation	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Law	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Construction	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Planning and Land Use	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Valuation	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Real Estate Economics	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Property Management and Agency	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate

Employability and Commercial Awareness	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Investment Appraisal and Valuation	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Portfolio and Fund Management	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Corporate Real Estate	Nottingham Trent University	School of Architecture Design and the Built Environment	BSc Hons	Real Estate
Introduction to Building Design and Construction	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Foundation Real Estate Law I (Contract)	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Foundation Real Estate Law II (Tort)	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Introduction to Property, Management and Professional Practice	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Introduction to Spatial Planning	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Introduction to Valuation	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Integrative Project I.	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Town Planning Practice	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Integrative Project II	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Integrative Project III (Professional Practice Test)	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Research Methods	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Dissertation	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management

	University	Environment		
Economics of Built Environment	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
The Construction and Appraisal of Real Estate	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Real Estate Economics and Finance	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Valuation and investment	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Land Law	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Landlord and Tenant Law	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Property Management	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Management of Corporate Real Estate	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Advanced Valuation	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Real Estate Investment	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Commercial and Residential Development	Oxford Brookes University	School of the Built Environment	BSc Hons	Real Estate Management
Contemporary Issues in Property and Society	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Integrating Project	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Practice Management	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Research Project	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Valuation 1	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Law 1	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Building Technology	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate

Property Transactions	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Landscape Management and Surveying	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Property Economics	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
The Business Environment	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Business Finance	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Valuation 2	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Law 2	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Building Management	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Property Agency	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Property Market Analysis	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Residential and Commercial Property Management	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Planning and Development	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Business and Property Finance and Taxation	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
Property Investment Finance and Valuation	Royal Agricultural University	School of Real Estate and Land Management	BSc Hons	Real Estate
introduction to the built environment professions	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
principles of valuation and finance	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
development project	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
commercial valuation practice	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate

development practice	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
real estate professional studies	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
dissertation	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
law and economics for the built environment	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
construction awareness	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
housing and sustainability	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
real estate management 1 and 2	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
planning and development	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
building pathology real estate economics	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
corporate real estate	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
strategic facilities management	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
asset and portfolio management	Sheffield Hallam University	Department of Natural and Built Environment	BSc Hons	Real Estate
An Introduction to Property Data Application	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Dissertation	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Economics	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Communicating Sustainability	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Development Process	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Law	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Financial Mathematics	Ulster University	School of the Built Environment	BSc Hons	Real Estate

and Valuation		Environment		
Construction Technology A	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Building Performance	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Planning and Property Law	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Valuation of Urban Property	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Creating Real Estate Value	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Property Economics and Market Modelling	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Real Estate Finance and Appraisal	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Investment Valuation and Portfolio Management	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Urban Regeneration and Finance	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Applied Property Market Analysis	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Property Asset Management, Statutory Valuations	Ulster University	School of the Built Environment	BSc Hons	Real Estate
Introduction to Real Estate	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Introducing Planning Systems	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Introducing Urban Design: Design Skills	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Urban Lab I: Graphic Skills	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Planning Project: Plan Making	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Urban Design: Theory to Practice	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Urban Lab II: Spatial	University College	Bartlett Faculty of the	BSc Hons	Planning and Real Estate

Analysis	London	Built Environment		
Management for Built Environment Professionals II	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Contemporary Cities	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Making Cities	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Management for Built Environment Professionals I	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Planning History and Thought	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Green Futures	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Economic Concepts OR Economics of Cities and their Regions	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Real Estate Economics	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Urban and Environmental Politics	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Cities and Social Change	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Finance and Investment Appraisal	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Real Estate Development	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Property and Planning Law	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Real Estate Valuation	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Regional Development Planning and Policy	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
Urban Project Management	University College London	Bartlett Faculty of the Built Environment	BSc Hons	Planning and Real Estate
General Introduction to	University of	School of Real Estate and	BSc Hons	Real Estate

Law	Reading	Planning		
Introduction to Property Law	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Introductions to Planning and Building	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Introductory Economics for Business and Finance	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Projects in Real Estate and Planning (1)	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Planning Law and Practice	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Projects in Real Estate and Planning (2)	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Investment Appraisal	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Part 1 CMS	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Applied Property Law	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Management in the Real Estate Sector	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Part 2 CMS	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Property Valuation	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
Real Estate Economics and Investment	University of Reading	School of Real Estate and Planning	BSc Hons	Real Estate
An Introduction to Building Construction	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Collaborative Practice	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Professional Practice in Property	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Professional Practice for	University of the	Department of	BSc Hons	Real Estate

the Built Environment	West of England	Architecture and Built Environment		
Dissertation	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Work-based Research Project	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Context of Property and Development	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Commercial Property Appraisal	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Property Management	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Valuation, Rating and Taxation	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Examination and Evaluation of Existing Buildings	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Landlord and Tenant	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Development Appraisal and Planning	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Valuations	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
International Property Management	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate
Agency	University of the West of England	Department of Architecture and Built Environment	BSc Hons	Real Estate

		Environment		
Introduction to Building Technology	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Introduction to Government and Government	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Introduction to Planning and Sustainability	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Introduction to Property	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Introduction to Property Economics and Property Accounting	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Commercial Practice	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Planning Practice	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Residential Practice	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Development Project	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Global Practice	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Professional Practice	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Property Business	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate
Property Management	University of Westminster	Department of Property and Construction	BSc Hons	Real Estate

Bachelor's Degrees (3years)

Bsc: Bachelor of Science

Bsc(Hons): Bachelor of Science (Honor)

Appendix B

The 189 Mandatory Subjects of the US Real Estate Courses Accredited by the AACSB (2016)

Subject	University	Dep. (Program/School)	Degree	Speciality/Major
Real Estate Appraisal	Baylor University	FINANCE, INSURANCE & REAL ESTATE	BBA	Real Estate
Real Estate Investments	Baylor University	FINANCE, INSURANCE & REAL ESTATE	BBA	Real Estate
Principles of Real Estate	Baylor University	FINANCE, INSURANCE & REAL ESTATE	BBA	Real Estate
Business and Real Estate Economics	California State University – Fresno	Finance and Business Law	BSBA ,BS	Real Estate & Urban Land Economics Option
Financial Institutions and Financial Markets	California State University – Fresno	Finance and Business Law	BSBA ,BS	Real Estate & Urban Land Economics Option
Real Estate Principles	California State University – Fresno	Finance and Business Law	BSBA ,BS	Real Estate & Urban Land Economics Option
Real Estate Appraisal	California State University – Fresno	Finance and Business Law	BSBA ,BS	Real Estate & Urban Land Economics Option
Real Estate Practices	California State University – Fresno	Finance and Business Law	BSBA ,BS	Real Estate & Urban Land Economics Option
Real Estate Finance	California State University – Fresno	Finance and Business Law	BSBA ,BS	Real Estate & Urban Land Economics Option
Real Estate Law	California State University – Fresno	Finance and Business Law	BSBA ,BS	Real Estate & Urban Land

				Economics Option
Final Student Teaching Seminar - Business	California State University – Fresno	Finance and Business Law	BSBA ,BS	Real Estate & Urban Land Economics Option
Essential Skills for Finance Professionals	California State-Los Angeles	Dept. of Finance and Law	BSBA	Real Estate
Real Estate Principles	California State-Los Angeles	Dept. of Finance and Law	BSBA	Real Estate
Real Estate Law	California State-Los Angeles	Dept. of Finance and Law	BSBA	Real Estate
Real Estate Finance	California State-Los Angeles	Dept. of Finance and Law	BSBA	Real Estate
Real Estate Investment	California State-Los Angeles	Dept. of Finance and Law	BSBA	Real Estate
Business Law II	California State-Northridge	David Nazarian College of Business and Economics	B.S., B.A.	Real Estate
Real Estate Evaluation	California State-Northridge	David Nazarian College of Business and Economics	B.S., B.A.	Real Estate
Real Estate Finance	California State-Northridge	David Nazarian College of Business and Economics	B.S., B.A.	Real Estate
Real Estate Law	California State-Northridge	David Nazarian College of Business and Economics	B.S., B.A.	Real Estate
Real Estate Practices	California State-Northridge	David Nazarian College of Business and Economics	B.S., B.A.	Real Estate
Real Estate Principles	California State-Northridge	David Nazarian College of Business and Economics	B.S., B.A.	Real Estate
Real Estate Appraisal	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Environmental Law	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Real Estate Law	Clarion University of	Department of Finance	BSBA	Real Estate

	Pennsylvania			
Residential Real Estate Appraisal	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Income Property Appraisal	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Business Cycles and Forecasting	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Urban and Regional Economics	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Retirement and Estate Planning	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Problems in Small Business	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Real Estate Finance	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Investments	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
International Environmental Law	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Real Estate Law	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Real Estate Law for the Paralegal	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Real Estate Law for the Paralegal	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Real Estate Management	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Management of Financial Institutions	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Advertising Management	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Personal Selling and Sales Mgmt.	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Human Resources Management	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Money and Banking	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate

Real Estate Market and Investment Analysis	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Real Estate Marketing and Brokerage	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Real Estate Marketing and Brokerage	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Marketing Research	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Entrepreneurial Leadership Seminar	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Tax Planning	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Advanced Legal Writing & Research	Clarion University of Pennsylvania	Department of Finance	BSBA	Real Estate
Real Estate Finance	Florida International University	Risk Management / Insurance, Real Estate and Regal Stidies	BS	Real Estate
Real Estate Investment	Florida International University	Risk Management / Insurance, Real Estate and Regal Stidies	BS	Real Estate
Real Estate Principles	Florida International University	Risk Management / Insurance, Real Estate and Regal Stidies	BS	Real Estate
Legal Environment of Real Estate	Florida International University	Risk Management / Insurance, Real Estate and Regal Stidies	BS	Real Estate
International Real Estate	Florida International University	Risk Management / Insurance, Real Estate and Regal Stidies	BS	Real Estate
Real Estate Finance	Florida State University	Risk Management / Insurance, Real Estate and Regal Stidies	BS	Real Estate
Real Estate Investment	Florida State University	Risk Management / Insurance, Real Estate and Regal Stidies	BS	Real Estate
Real Estate Market Analysis	Florida State University	Risk Management / Insurance, Real Estate	BS	Real Estate

		and Regal Stidies		
Legal Environment of Real Estate	Florida State University	Risk Management / Insurance, Real Estate and Regal Stidies	BS	Real Estate
Real Estate Valuation	Florida State University	Risk Management / Insurance, Real Estate and Regal Stidies	BS	Real Estate
Real Estate Development	Georgia State University	Real Estate	BBA	Real Estate
Real Estate Investment Analysis	Georgia State University	Real Estate	BBA	Real Estate
Real Estate Principles	Georgia State University	Real Estate	BBA	Real Estate
Real Estate Finance and Mortgage Banking	Georgia State University	Real Estate	BBA	Real Estate
Introduction to Real Estate	Ohio State University	Real Estate and Urban Analysis	BSBA	Real Estate
Real Estate Finance	Ohio State University	Real Estate and Urban Analysis	BSBA	Real Estate
Real Estate Law	Ohio State University	Real Estate and Urban Analysis	BSBA	Real Estate
Property Management	Ohio State University	Real Estate and Urban Analysis	BSBA	Real Estate
Planning & Development	Ohio State University	Real Estate and Urban Analysis	BSBA	Real Estate
Real Estate Strategy	Ohio State University	Real Estate and Urban Analysis	BSBA	Real Estate
Real Estate Development	San Diego State University	Real Estate	BSBA	Real Estate
Real Estate Finance	San Diego State University	Real Estate	BSBA	Real Estate
Real Estate Investment Analysis	San Diego State University	Real Estate	BSBA	Real Estate
Law of Real Property	San Diego State University	Real Estate	BSBA	Real Estate
Mortgage Banking	San Diego State University	Real Estate	BSBA	Real Estate

Property Management & Security Analysis	San Diego State University	Real Estate	BSBA	Real Estate
Real Estate Essentials	San Diego State University	Real Estate	BSBA	Real Estate
Theory of Real Property Value	San Diego State University	Real Estate	BSBA	Real Estate
Real Estate Finance	Southern Methodist University	Real Estate, Risk Management,& Business Law	BBA	Real Estate
Real Estate Law	Southern Methodist University	Real Estate, Risk Management,& Business Law	BBA	Real Estate
Real Estate Fundamentals	Southern Methodist University	Real Estate, Risk Management,& Business Law	BBA	Real Estate
Real Estate Markets and Valuation	Southern Methodist University	Real Estate, Risk Management,& Business Law	BBA	Real Estate
Intermediate Corporate Finance	Temple University	Finance Real Estate	BBA	Real Estate
International Finance 1	Temple University	Finance Real Estate	BBA	Real Estate
Real Estate Fundamentals	Temple University	Finance Real Estate	BBA	Real Estate
Real Estate Practice	Temple University	Finance Real Estate	BBA	Real Estate
Commercial Real Estate Analysis	Temple University	Finance Real Estate	BBA	Real Estate
Real Estate Investment and Finance	Temple University	Finance Real Estate	BBA	Real Estate
Seminar in Real Estate Asset Analysis (spring only)	Temple University	Finance Real Estate	BBA	Real Estate
Principles of Financial Accounting	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Principles of Managerial Accounting	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Career Development in Business	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Business Information Systems	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics

Economics for Global Business Decisions	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Strategy, Policy and Planning (Seniors only)	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Real Estate Finance	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Financial Services	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Financial Risk Management	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Applications in Financial Management	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Global Financial Management	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Real Estate Investments	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Investments and Security Analysis	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Real Estate Law	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Legal and Ethical Environment of Business	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Financial Management	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Introduction to Marketing Management	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Operations Management	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Managerial and Interpersonal Behavior	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Marketing Research	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Real Estate Markets	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Real Estate Principles	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Risk Management and	University of	Real Estate & Urban	BS	Real Estate and

Insurance	Connecticut	Economic Studies		Urban Economics
Urban and Regional Economics	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Effective Business Writing	University of Connecticut	Real Estate & Urban Economic Studies	BS	Real Estate and Urban Economics
Architectural Planning & Design Management	University of Denver	Daniels College of Business	BSBA	Real Estate and the Built Environment
Business of the Built Environment	University of Denver	Daniels College of Business	BSBA	Real Estate and the Built Environment
Real Estate Finance	University of Denver	Daniels College of Business	BSBA	Real Estate and the Built Environment
Real Estate Financial Analysis	University of Denver	Daniels College of Business	BSBA	Real Estate and the Built Environment
Legal Issues & Risk Management	University of Denver	Daniels College of Business	BSBA	Real Estate and the Built Environment
Construction Project Management	University of Denver	Daniels College of Business	BSBA	Real Estate and the Built Environment
Corporate Real Estate & Facilities Management	University of Denver	Daniels College of Business	BSBA	Real Estate and the Built Environment
Real Estate Development	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Directed Study	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Real Estate Finance	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Real Estate Investment	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Real Estate Law	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Real Estate	University of Georgia	Insurance, Legal	BBA	Real Estate

		Studies, and Real Estate		
Real Estate (E)	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Real Estate (Honors)	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Internship in Real Estate	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Special Topics in Real Estate	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Research in Real Estate	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Principles of Valuation	University of Georgia	Insurance, Legal Studies, and Real Estate	BBA	Real Estate
Financial Statement Analysis	University of Mississippi	Finance	BBA	Real Estate
Advanced Income Appraisal	University of Mississippi	Finance	BBA	Real Estate
Business Finance Topics	University of Mississippi	Finance	BBA	Real Estate
Financial Decision Making	University of Mississippi	Finance	BBA	Real Estate
Futures, Options, and Swaps	University of Mississippi	Finance	BBA	Real Estate
Quantitative Financial Analysis	University of Mississippi	Finance	BBA	Real Estate
Life and Health Insurance	University of Mississippi	Finance	BBA	Real Estate
Commercial Property Insurance	University of Mississippi	Finance	BBA	Real Estate
Commercial Liability Insurance	University of Mississippi	Finance	BBA	Real Estate
Real Estate Investment Analysis	University of Mississippi	Finance	BBA	Real Estate
Investments	University of Mississippi	Finance	BBA	Real Estate
Real Estate Law	University of Mississippi	Finance	BBA	Real Estate

Bank Management I	University of Mississippi	Finance	BBA	Real Estate
Bank Management II	University of Mississippi	Finance	BBA	Real Estate
Corporate Risk Management	University of Mississippi	Finance	BBA	Real Estate
Intermediate Financial Management	University of Mississippi	Finance	BBA	Real Estate
Managing Financial Institutions	University of Mississippi	Finance	BBA	Real Estate
Money and Banking	University of Mississippi	Finance	BBA	Real Estate
Principles of Real Estate	University of Mississippi	Finance	BBA	Real Estate
Real Estate Finance and Mortgage Banking	University of Mississippi	Finance	BBA	Real Estate
Real Estate Valuation and Appraisal	University of Mississippi	Finance	BBA	Real Estate
Risk and Insurance	University of Mississippi	Finance	BBA	Real Estate
Security Analysis and Portfolio Mgmt	University of Mississippi	Finance	BBA	Real Estate
Development	University of Nevada-Las Vegas	Real Estate	BSBA	Real Estate
Finance	University of Nevada-Las Vegas	Real Estate	BSBA	Real Estate
Investments	University of Nevada-Las Vegas	Real Estate	BSBA	Real Estate
Real Estate Law	University of Nevada-Las Vegas	Real Estate	BSBA	Real Estate
Principles of Real Estate	University of North Texas	Finance, Insurance, Real Estate and Law	BBA	Real Estate
Real Estate Agency	University of North Texas	Finance, Insurance, Real Estate and Law	BBA	Real Estate
Real Estate Finance	University of North Texas	Finance, Insurance, Real Estate and Law	BBA	Real Estate
Real Estate Investments	University of North	Finance, Insurance, Real	BBA	Real Estate

	Texas	Estate and Law		
Real Estate Law and Contracts	University of North Texas	Finance, Insurance, Real Estate and Law	BBA	Real Estate
Property Management	University of North Texas	Finance, Insurance, Real Estate and Law	BBA	Real Estate
Real Estate Valuation	University of North Texas	Finance, Insurance, Real Estate and Law	BBA	Real Estate
Real Estate Finance	University of Northern Iowa	Finance	BA	Real Estate
Intermediate Financial Management	University of Northern Iowa	Finance	BA	Real Estate
Advanced Financial Management	University of Northern Iowa	Finance	BA	Real Estate
Principles of Real Estate	University of Northern Iowa	Finance	BA	Real Estate
Real Estate Appraisal and Investment	University of Northern Iowa	Finance	BA	Real Estate
Real Estate Law and Brokerage	University of Northern Iowa	Finance	BA	Real Estate
Real Estate Appraisal	University of Saint Thomas	Finance	BS	Real Estate
Real Estate Development	University of Saint Thomas	Finance	BS	Real Estate
Real Estate Finance & Investment	University of Saint Thomas	Finance	BS	Real Estate
Real Estate Law	University of Saint Thomas	Finance	BS	Real Estate
Real Estate Market Analysis	University of Saint Thomas	Finance	BS	Real Estate
Real Estate Principles	University of Saint Thomas	Finance	BS	Real Estate
Real Estate Property Management	University of Saint Thomas	Finance	BS	Real Estate
Real Estate Appraisal	University of Texas-Arlington	Real Estate	BBA	Real Estate
Real Estate Finance	University of Texas-Arlington	Real Estate	BBA	Real Estate

Real Estate Fundamentals	University of Texas-Arlington	Real Estate	BBA	Real Estate
Real Estate Finance	University of Wisconsin-Madison	Real Estate& Urban Land Economics	BBA	Real Estate
Real Estate Law	University of Wisconsin-Madison	Real Estate& Urban Land Economics	BBA	Real Estate
Residential Property Development	University of Wisconsin-Madison	Real Estate& Urban Land Economics	BBA	Real Estate
The Real Estate Process	University of Wisconsin-Madison	Real Estate& Urban Land Economics	BBA	Real Estate
Urban and Regional Economics	University of Wisconsin-Madison	Real Estate& Urban Land Economics	BBA	Real Estate
Valuation of Real Estate	University of Wisconsin-Madison	Real Estate& Urban Land Economics	BBA	Real Estate

Bachelor's Degrees (4years)

B.A: Business Administration

B.S: Bachelor of Science

B.B.A: Bachelor of Business Administration

B.S.B.A: Bachelor of Science Degree in Business Administration

Appendix C

The 13 Mandatory Subjects of the Real Estate Department of Meikai Univ. in Japan(2016)

Subject	University	Dep. (Program/School)	Degree	Speciality/Major
Seminar in Introductory Real Estate Science	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Practical Seminar of Real Estate Transaction A	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Practical Seminar of Real Estate Transaction B	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Practical Seminar of Real Estate Transaction C	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Introduction to Property Law	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Real Property Law	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Microeconomics	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Basic Building Technology	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Introduction to City Planning	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Mathematics and Statistics for Real Estate Science I	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Fundamental Law of City and Building	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Career Designing	Meikai University	Real Estate Science	Bachelor's Degrees	Real Estate Science
Workshop on Business Game	Meikai University	B Real Estate Science	Bachelor's Degrees	Real Estate Science

Bachelor's Degrees (4years)

Appendix D

The UK Subjects Linked with the UK Only Core Terms

Only the UK Core Terms
Project (27)
Professional (18)
Introduction (17)
Building (16)
Construction (12)
Urban (9)
Built (8)
Surveying (8)
Principles (7)
History (1)
note: (TF of UK)

1. Project

Subjects
<ul style="list-style-type: none">• Integrating Project (4)• Development Project (3)• Professional Practice Project (3)• Research Project (3)• Project Evaluation (2)• Projects in Real Estate and Planning (2)• Corporate Occupiers Project (1)• Corporate Property Project (1)• Honours Research Project (1)• Inter Professional Project (1)• Interdisciplinary Project (1)• Planning Project: Plan Making (1)• Professional Surveying Skills Project (1)• Property Market Project (1)• Urban Project Management (1)• Work-based Research Project (1)

2. Professional

Subjects
<ul style="list-style-type: none">• Professional Practice Project (4)• Management for Built Environment Professionals (2)• Career And Professional Development (1)• Integrative Project III (Professional Practice Test) (1)• Inter Professional Project (1)• Introduction to Property, Management and Professional Practice (1)• Professional Academic and Business Skills (1)• Professional Practice (1)• Professional Practice and Managerial Skills (1)• Professional Practice for the Built Environment (1)• Professional Practice in Context (1)• Professional Practice in Property (1)• Professional Surveying Skills Project (1)• Real Estate Professional Studies (1)

3. Introduction

Subjects
<ul style="list-style-type: none">• An Introduction to Building Construction (1)• An Introduction to Property Data Application (1)• General Introduction to Law (1)• Introduction (1)• Introduction to Building Design and Construction (1)• Introduction to Building Technology (1)• Introduction to Government and Government (1)• Introduction to Planning and Sustainability (1)• Introduction to Property (1)• Introduction to Property Economics and Property Accounting (1)• Introduction to Property Law (1)• Introduction to Property, Management and Professional Practice (1)• Introduction to Real Estate (1)• Introduction to Spatial Planning (1)

-
- **Introduction to the Built Environment Professions (1)**
 - **Introduction to Valuation (1)**
 - **Introductions to Planning and Building (1)**
-

4. Building

Subjects

- **Building Design & Technology (2)**
 - **An Introduction to Building Construction (1)**
 - **Building Construction and Inspection (1)**
 - **Building Economics (1)**
 - **Building Engineering & Construction Maths (1)**
 - **Building Management (1)**
 - **building Pathology Real Estate Economics (1)**
 - **Building Pathology & Dilapidations (1)**
 - **Building Performance (1)**
 - **Building Technology (1)**
 - **Examination and Evaluation of Existing Buildings (1)**
 - **Introduction to Building Design and Construction (1)**
 - **Introduction to Building Technology (1)**
 - **Introductions to Planning and Building (1)**
 - **Surveying Buildings (1)**
-

5. Construction

Subjects

- **Construction Technology (2)**
 - **An Introduction to Building Construction (1)**
 - **Building Construction and Inspection (1)**
 - **Building Engineering & Construction Maths (1)**
 - **Construction (1)**
 - **Construction Awareness (1)**
 - **Construction Economics & Management (1)**
-

-
- **Introduction to Building Design and Construction (1)**
 - **Property & Construction Business Law (1)**
 - **Property Construction and Inspection (1)**
 - **The Construction and Appraisal of Real Estate (1)**
-

6. Urban

Subjects

- **Introducing Urban Design: Design Skills (1)**
 - **Urban and Environmental Politics (1)**
 - **Urban Design: Theory to Practice (1)**
 - **Urban Lab I: Graphic Skills (1)**
 - **Urban Lab II: Spatial Analysis (1)**
 - **Urban Planning And City Development (1)**
 - **Urban Project Management (1)**
 - **Urban Regeneration and Finance (1)**
 - **Valuation of Urban Property (1)**
-

7. Built

Subjects

- **Management for Built Environment Professionals (2)**
 - **Economics of Built Environment (1)**
 - **Introduction to the Built Environment Professions (1)**
 - **Law & Economics for the Built Environment (1)**
 - **Law for the Built Environment (1)**
 - **Professional Practice for the Built Environment (1)**
 - **The Evolution of the Built Environment (1)**
-

8. Surveying

Subjects

- **Landscape Management and Surveying (1)**
 - **Professional Surveying Skills Project (1)**
-

-
- **Residential Surveying (1)**
 - **Surveying (1)**
 - **Surveying (Conservation) (1)**
 - **Surveying (Property Management) (1)**
 - **Surveying Buildings (1)**
 - **Surveying Skills (1)**
-

9. Principles

Subjects

- **Principles of Valuation (2)**
 - **Principles of Economics (1)**
 - **Principles of Law and Organisations (1)**
 - **Principles of Valuation and Appraisal (1)**
 - **Principles of Valuation and Finance (1)**
 - **Property Development: Principles and Practice (1)**
-

10. History

Subject

- **Planning History and Thought (1)**
-

Appendix E.

The US Subjects Linked with the US Only Core Terms

Only the US Core Terms
Legal (7)
Banking (5)
Risk (5)
Insurance (4)
Fundamentals (3)
Institutions (3)
Brokerage (3)
Ethical (1)
note: (TF of US)

1. Legal

Subjects
<ul style="list-style-type: none">• Legal Environment of Real Estate (2)• Real Estate Law for the Paralegal (2)• Advanced Legal Writing & Research (1)• Legal and Ethical Environment of Business (1)• Legal Issues & Risk Management (1)

2. Banking

Subjects
<ul style="list-style-type: none">• Money & Banking (2)• Real Estate Finance and Mortgage Banking (2)• Mortgage Banking(1)

3. Risk

Subjects
<ul style="list-style-type: none">• Corporate Risk Management(1)• Financial Risk Management(1)• Legal Issues & Risk Management(1)• Risk and Insurance(1)• Risk Management and Insurance(1)

4. Insurance

Subjects
<ul style="list-style-type: none">• Commercial Liability Insurance(1)• Commercial Property Insurance(1)• Risk and Insurance(1)• Risk Management and Insurance(1)

5. Fundamentals

Subject
<ul style="list-style-type: none">• Real Estate Fundamentals (3)

6. Institutions

Subjects
<ul style="list-style-type: none">• Management of Financial Institutions (2)• Financial Institutions and Financial Markets (1)

7. Brokerage

Subjects
<ul style="list-style-type: none">• Real Estate Marketing & Brokerage (2)

-
- **Real Estate Law & Brokerage(1)**
-

8. Ethical

Subject

- **Legal and Ethical Environment of Business (1)**
-

Appendix F.

The UK and US Subjects Linked with Core Common Terms

[The UK and US Common Core Terms]

Real (34,110)
 Estate (34,109)
 Property (44,9)
 Finance (14,42)
 Management (36,32)
 Valuation (36,7)
 Law (28,21)
 Investment (14,18)
 Appraisal (15,10)

note: (TF of UK, TF of US)

1. Real Estate

UK	US
• Real Estate Economics (4)	• Real Estate Finance (16)
• Real Estate Development (2)	• Real Estate Law (13)
• Corporate Real Estate (2)	• Real Estate Principles (11)
• Projects in Real Estate and Planning (2)	• Real Estate Investments (7)
• Corporate Real Estate Management(1)	• Real Estate Appraisal (5)
• Real Estate(1)	• Real Estate (3)
• Commercial Real Estate Appraisal(1)	• Real Estate Law for the Paralegal (2)
• Real Estate Investment And Finance(1)	• Real Estate Marketing and Brokerage (2)
• Foundation Real Estate Law I (Contract)(1)	• Real Estate Valuation (2)
• Foundation Real Estate Law II (Tort)(1)	• Real Estate Management(1)
• The Construction and Appraisal of Real Estate(1)	• Business and Real Estate Economics(1)
• Real Estate Economics and Finance(1)	• Real Estate Market and Investment Analysis(1)

-
- **Management of Corporate Real Estate(1)**
 - **Real Estate Investment(1)**
 - **Real Estate Professional Studies(1)**
 - **Real Estate Management 1 and 2(1)**
 - **Building Pathology Real Estate Economics(1)**
 - **Creating Real Estate Value(1)**
 - **Real Estate Finance and Appraisal(1)**
 - **Introduction to Real Estate(1)**
 - **Real Estate Valuation(1)**
 - **Management in the Real Estate Sector(1)**
 - **Real Estate Economics and Investment(1)**
 - **Legal Environment of Real Estate(1)**
 - **International Real Estate(1)**
 - **Real Estate Market Analysis(1)**
 - **Legal Environment of Real Estate(1)**
 - **Real Estate Development(1)**
 - **Real Estate Investment Analysis(1)**
 - **Real Estate Finance and Mortgage Banking(1)**
 - **Introduction to Real Estate(1)**
 - **Real Estate Strategy(1)**
 - **Real Estate Development(1)**
 - **Real Estate Investment Analysis(1)**
 - **Real Estate Essentials(1)**
 - **Real Estate Fundamentals(1)**
 - **Real Estate Markets and Valuation(1)**
 - **Commercial Real Estate Analysis(1)**
 - **Real Estate Investment and Finance(1)**
 - **Seminar in Real Estate Asset Analysis (spring only)(1)**
 - **Real Estate Markets(1)**
 - **Real Estate Financial Analysis(1)**
 - **Corporate Real Estate & Facilities Management(1)**
 - **Internship in Real Estate(1)**
 - **Special Topics in Real Estate(1)**
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- **Research in Real Estate(1)**
 - **Real Estate Investment Analysis(1)**
 - **Real Estate Finance and Mortgage Banking(1)**
 - **Real Estate Valuation and Appraisal(1)**
 - **Real Estate Agency(1)**
 - **Real Estate Law and Contracts(1)**
 - **Real Estate Appraisal and Investment(1)**
 - **Real Estate Law and Brokerage(1)**
 - **Real Estate Finance & Investment(1)**
 - **Real Estate Market Analysis(1)**
 - **Real Estate Property Management(1)**
 - **The Real Estate Process(1)**
-

2. Property

UK	US
• Property Management (2)	• Income Property Appraisal(1)
• Law for Property and Planning(1)	• Law of Real Property(1)
• Property Investment and Finance(1)	• Property Management & Security Analysis(1)
• Property & Construction Business Law(1)	• Theory of Real Property Value(1)
• Surveying (Property Management)(1)	• Commercial Property Insurance(1)
• Corporate Property Project(1)	• Real Estate Property Management(1)
• Practical Property Law 2 (1)	• Residential Property Development(1)
• Property Market Project (1)	
• Property Law (1)	

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- **Property Asset Management(1)**
 - **Property Marketing And Agency(1)**
 - **Property Development: Principles and Practice
(1)**
 - **Property Management and Agency(1)**
 - **Introduction to Property, Management and
Professional Practice (1)**
 - **Contemporary Issues in Property and Society(1)**
 - **Property Transactions(1)**
 - **Property Economics(1)**
 - **Property Agency(1)**
 - **Property Market Analysis(1)**
 - **Residential and Commercial Property
Management(1)**
 - **Business and Property Finance and Taxation(1)**
 - **Property Investment Finance and Valuation(1)**
 - **Planning and Property Law(1)**
 - **Valuation of Urban Property(1)**
 - **Property Economics and Market Modelling (1)**
 - **Applied Property Market Analysis(1)**
 - **Property Asset Management, Statutory
Valuations(1)**
 - **Property and Planning Law(1)**
 - **Introduction to Property Law(1)**
 - **Applied Property Law(1)**
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- **Property Valuation(1)**
 - **Professional Practice in Property(1)**
 - **Context of Property and Development(1)**
 - **Commercial Property Appraisal(1)**
 - **Property Management(1)**
 - **International Property Management(1)**
 - **Introduction to Property(1)**
 - **Introduction to Property Economics and
Property Accounting(1)**
 - **Property Business(1)**
-

3. Finance

UK	US
• Advanced Investment Strategy and Finance (1)	• Real Estate Finance(16)
• Business and Property Finance and Taxation (1)	• Real Estate Finance and Mortgage Banking(2)
• Business Finance (1)	• Intermediate Financial Management(2)
• Finance and Investment Appraisal (1)	• Financial Institutions & Financial Markets(2)
• Financial Mathematics and Valuation (1)	• Essential Skills for Finance Professionals (1)
• Introductory Economics for Business and Finance (1)	• Management of Financial Institutions (1)
• Principles of valuation and finance (1)	• Intermediate Corporate Finance (1)
• Property Investment and Finance (1)	• International Finance 1 (1)
• Property Investment Finance and Valuation (1)	• Real Estate Investment and Finance (1)
• Real Estate Economics and Finance (1)	• Principles of Financial Accounting (1)
• Real Estate Finance and Appraisal (1)	• Financial Services (1)

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- **Real Estate Investment And Finance (1)**
 - **Urban Regeneration and Finance (1)**
 - **Financial Risk Management (1)**
 - **Applications in Financial Management (1)**
 - **Global Financial Management (1)**
 - **Financial Management (1)**
 - **Real Estate Financial Analysis (1)**
 - **Financial Statement Analysis (1)**
 - **Business Finance Topics (1)**
 - **Financial Decision Making (1)**
 - **Quantitative Financial Analysis (1)**
 - **Managing Financial Institutions (1)**
 - **Finance (1)**
 - **Advanced Financial Management (1)**
 - **Real Estate Finance & Investment (1)**
-

4. Management

UK	US
• Corporate Real Estate Management(2)	• Bank Management(2)
• Property Management(3)	• Intermediate Financial Management(2)
• real estate management(2)	• Property Management(2)
• Management for Built Environment Professionals(2)	• Real Estate Management(1)
• Part1,2 Cash Management Service (2)	• Management of Financial Institutions(1)
• Professional Practice and Managerial Skills(1)	• Advertising Management(1)
• Surveying (Property Management) (1)	• Personal Selling and Sales Mgmt. (1)
• Context of Sustainable Real Estate Management(1)	• Human Resources Management(1)

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- **Commercial Real Estate Management(1)**
 - **Strategic Commercial Asset Management(1)**
 - **Business Management(1)**
 - **Maintenance and Facilities Management(1)**
 - **Land Management(1)**
 - **Construction Economics and Management(1)**
 - **Property Asset Management(1)**
 - **Property Management and Agency(1)**
 - **Portfolio and Fund Management(1)**
 - **Introduction to Property, Management and Professional Practice(1)**
 - **Management of Corporate Real Estate(1)**
 - **Practice Management(1)**
 - **Landscape Management and Surveying(1)**
 - **Building Management(1)**
 - **Residential and Commercial Property Management(1)**
 - **strategic facilities management(1)**
 - **asset and portfolio management(1)**
 - **Investment Valuation and Portfolio Management(1)**
 - **Property Asset Management, Statutory Valuations(1)**
 - **Urban Project Management(1)**
 - **Management in the Real Estate Sector(1)**
 - **International Property Management(1)**
 - **Property Management & Security Analysis(1)**
 - **Principles of Managerial Accounting(1)**
 - **Financial Risk Management(1)**
 - **Applications in Financial Management(1)**
 - **Global Financial Management(1)**
 - **Financial Management(1)**
 - **Introduction to Marketing Management(1)**
 - **Operations Management(1)**
 - **Managerial and Interpersonal Behavior(1)**
 - **Risk Management and Insurance(1)**
 - **Architectural Planning & Design Management(1)**
 - **Legal Issues & Risk Management(1)**
 - **Construction Project Management(1)**
 - **Corporate Real Estate & Facilities Management(1)**
 - **Corporate Risk Management(1)**
 - **Managing Financial Institutions(1)**
 - **Security Analysis and Portfolio Mgmt(1)**
 - **Advanced Financial Management(1)**
 - **Real Estate Property Management(1)**
-

5. Valuation

UK	US
• Valuation(7)	• Real Estate Valuation (2)
• Applied Valuation(2)	• Principles of Valuation(1)
• Principles of Valuation(2)	• Real Estate Markets and Valuation(1)
• Valuation Theory and Applications(2)	• Real Estate Valuation and Appraisal (1)
• Advanced Applied Valuation(1)	• Valuation of Real Estate(1)
• Valuation and Law(1)	
• Principles of Valuation and Appraisal(1)	
• Valuation and Appraisal in Context(1)	
• Valuation Theory and Applications Investment(1)	
• Principles of Valuation(1)	
• Applied Valuation(1)	
• Economics and Valuation(1)	
• Investment Appraisal and Valuation(1)	
• Introduction to Valuation(1)	
• Valuation and investment(1)	
• Advanced Valuation(1)	
• Property Investment Finance and Valuation(1)	
• principles of valuation and finance(1)	
• commercial valuation practice(1)	
• Financial Mathematics and Valuation(1)	
• Valuation of Urban Property(1)	
• Investment Valuation and Portfolio Management(1)	
• Property Asset Management, Statutory Valuation(1)	

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- **Real Estate Valuation(1)**
 - **Property Valuation(1)**
 - **Valuation, Rating and Taxation(1)**
-

6. Law

UK	US
• Law (8)	• Real Estate Law (13)
• Applied Property Law (1)	• Real Estate Law for the Paralegal (2)
• Commercial Landlord and Tenant Law and Agency Practice (1)	• Business Law II (1)
• Foundation Real Estate Law I (Contract) (1)	• Environmental Law (1)
• Foundation Real Estate Law II (Tort) (1)	• International Environmental Law (1)
• General Introduction to Law (1)	• Law of Real Property (1)
• Introduction to Property Law (1)	• Real Estate Law and Brokerage (1)
• Land Law (1)	• Real Estate Law and Contracts (1)
• Landlord and Tenant Law (1)	
• Landlord and Tenant Law Practice (1)	
• law and economics for the built environment (1)	
• Law for Property and Planning (1)	
• Law for Surveyors (1)	
• Law for the Built Environment (1)	
• Planning and Property Law (1)	
• Planning Law and Practice (1)	
• Practical Property Law (1)	

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- **Principles of Law and Organisations (1)**
 - **Property & Construction Business Law (1)**
 - **Property and Planning Law (1)**
 - **Property Law (1)**
 - **Valuation and Law (1)**
-

7. Investment

UK	US
• Investment Appraisal (2)	• Real Estate Investment (4)
• Advanced Investment Strategy and Finance (1)	• Investments (3)
• Finance and Investment Appraisal (1)	• Real Estate Investment Analysis (3)
• Investment Appraisal and Valuation (1)	• Real Estate Investments (3)
• Investment Valuation and Portfolio Management (1)	• Investments & Security Analysis (1)
• Property Investment and Finance (1)	• Real Estate Appraisal & Investment (1)
• Property Investment Finance and Valuation (1)	• Real Estate Finance & Investment (1)
• Real Estate Economics and Investment (1)	• Real Estate Investment & Finance (1)
• Real Estate Investment (1)	• Real Estate Market and Investment Analysis
• Real Estate Investment And Finance (1)	(1)
• Valuation and investment (1)	
• Valuation Theory & Investment (1)	

8. Appraisal

UK	US
<ul style="list-style-type: none">• Investment Appraisal (2)	<ul style="list-style-type: none">• Real Estate Appraisal (5)
<ul style="list-style-type: none">• Commercial Property Appraisal (1)	<ul style="list-style-type: none">• Income Property Appraisal (1)
<ul style="list-style-type: none">• Commercial Real Estate Appraisal (1)	<ul style="list-style-type: none">• Advanced Income Appraisal (1)
<ul style="list-style-type: none">• Development Appraisal (1)	<ul style="list-style-type: none">• Real Estate Appraisal and Investment (1)
<ul style="list-style-type: none">• Development Appraisal and Planning (1)	<ul style="list-style-type: none">• Real Estate Valuation and Appraisal (1)
<ul style="list-style-type: none">• Finance & Investment Appraisal (1)	<ul style="list-style-type: none">• Residential Real Estate Appraisal (1)
<ul style="list-style-type: none">• Investment Appraisal and Valuation (1)	
<ul style="list-style-type: none">• Planning & Development Appraisal (1)	
<ul style="list-style-type: none">• Principles of Valuation & Appraisal (1)	
<ul style="list-style-type: none">• Real Estate Finance & Appraisal (1)	
<ul style="list-style-type: none">• The Construction & Appraisal of Real Estate (1)	
<ul style="list-style-type: none">• Valuation & Appraisal in Context (1)	

Thesis Acknowledgement

Foremost, I would like to express my sincere gratitude to my Supervisor Prof. Myoung Young PIOR for the continuous support of my Ph.D study and research, for his patience, motivation, enthusiasm, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis. I could not have imagined having a better advisor and mentor for my Ph.D study.

Besides my Supervisor, I would like to thank the rest of my thesis committee: Prof. Yasuhiko NAKAJO, Prof. Takashi YAMAMOTO, and Prof. Toshikazu SUTO for their encouragement, insightful comments, and hard questions.

Last but not the least, I would like to thank God, my Parents and my Family for giving birth to me at the first place and supporting me spiritually throughout my life.