



Research on Evaluation of Course Learning Outcomes Achievement for Data Jurisprudence

Yuanwei Zhao

Officers College of PAP, Chengdu, 610200, China

email: 979211383@qq.com

Abstract. The Data Jurisprudence is an interdisciplinary professional course integrating modern computer science technologies such as big data, artificial intelligence, cloud computing, and network connectivity with the field of law, aimed at training talents proficient in both law and big data^[1]. This paper introduces the basic concepts and connotations of data jurisprudence, formulates the teaching objectives of the course, adopts evaluation methods including attendance, classroom teaching and interaction, computer training practice, and after-class assessments, and assigns specific weight proportions to various assessment methods to evaluate the achievement of the course's learning outcomes^[2]. Practice has shown that this outcome-based evaluation is reasonable and feasible, and it holds significant importance for the teaching effectiveness and high-quality development of the course.

Keywords: data jurisprudence; course teaching; teaching evaluation; learning outcomes achievement

1 Introduction

With the rapid development of ICT technologies such as artificial intelligence, big data, cloud computing, and blockchain, the relationship between society and law has undergone significant changes, thereby greatly increasing the demand for data law professionals. As an emerging specialized direction, graduates of Data Jurisprudence can engage in data regulation, data protection, legal data services, and intellectual property protection, and can work in courts, government regulatory agencies, and other institutions to develop and apply legal data solutions^[3].

The Data Jurisprudence program aims to cultivate high-end, application-oriented, and multidisciplinary legal talents who possess solid theoretical knowledge in law, are familiar with legal information and intelligent technologies, and have the capabilities for strategic management of intelligent legal services, project planning and implementation, and data legal dispute resolution. Graduates are expected to have integrity, sensitivity, innovation, and a comprehensive development in moral, intellectual, physical, aesthetic, and labor aspects.

The "Data Jurisprudence" course is a core course in this program. It elucidates the logic and implementation path of finance and law in the big data era, analyzes data

governance and personal information protection, and explores new social and economic propositions such as the application of big data in fintech and financial regulation^[4]. Topics include big data governance, big data and digital currency, big data and credit reporting, big data and information disclosure, big data and financial consumer protection, and big data regulation^[5]. This course trains interdisciplinary talents in internet big data, finance, and law to promote the healthy development of government-industry-academia-research integration and to leverage big data and fintech in China's economic transformation and innovation-driven development.

2 Course Teaching Objectives

Taking the "Data Jurisprudence" course as an example, the teaching objectives can be summarized in three aspects:

1. Master the main content of legal big data and the relevant legal and regulatory foundations, and lay a solid theoretical foundation for the design and implementation of legal big data analysis and various information management.
2. Master techniques and skills for collecting and processing legal data, and be able to effectively select and proficiently use software and hardware systems for information collection, processing, and analysis to quickly analyze and solve complex legal problems.
3. Master the logic and implementation paths of finance and law in the big data era, analyze data governance, personal information protection, intellectual property, and understand how big data is applied in various contexts.

3 Evaluation Methods and Standards for Learning Outcomes Achievement

3.1 Evaluation Methods

The evaluation of course outcomes combines course exams, mid-term assessments, and regular performance evaluations. The regular performance includes class performance (attendance, active listening, participation, and computer practice), after-class assignments, data material collection, and submission of information reports. Both quantitative and qualitative methods are integrated for comprehensive formative assessment.

3.2 Evaluation Standards

According to the teaching practice of the Data Jurisprudence course, the grade distribution is set as: regular performance 40%, final exam 60%. Specific evaluation standards are shown in Table 1.

Table 1. Course Objective Achievement Evaluation and Grading Method.

Course Objective	Supports Graduation Requirements	Attendance Assessment (%)	Classroom Interaction (%)	Computer Training Practice (%)	Mid-term Assessment (%)	Final Exam (%)
Course Objective 1	Supports Graduation Requirements	5	5	5	10	25
Course Objective 2	Supports Graduation Requirements	5	5	5	30	45
Course Objective 3	Supports Graduation Requirements	5	5	.	20	30
Total		15	15	10	60	100

Note: The proportions in this table represent the percentage of the overall course grade.

4 Course Objective Achievement Evaluation

This section sequentially elaborates on the achievement evaluation of course objectives based on attendance assessment, in-class lab practice, and final exam.

4.1 Class Attendance Assessment

Class attendance assessment mainly refers to the evaluation of classroom participation and in-class lab practice. The attendance evaluation and its criteria are shown in Table 2 below.

Table 2. Attendance Assessment and Evaluation Criteria.

The number of questions and interactions	Basic Internship Requirements	Evaluation Criteria				Grade Proportion (%)
		Excellent (90–100 points)	Good (75–89 points)	Pass (60–75 points)	Fail (Below 60 points)	
1	Understanding and Mastery of the Teacher's Instruction and Ability to Interact	Accurately, quickly, and thoroughly understands the classroom content and is able to interact	Has a good understanding and mastery; responds and interacts actively	Has an average understanding and mastery; can generally interact	Basically unable to answer questions correctly or engage in interaction	20
2						20
3						20
4						20
5						20

4.2 The in-class Programming, data Collection, and Provision of data-based Reports Occurred a total of 5 times, with the Evaluation Criteria Shown in Table 3 below

Table 3. Classroom Practical (Hands-on) Internship Assessment and Evaluation Criteria.

Practical (Hands-on) Content	Basic Re- quirements	Evaluation Criteria				Grade Pro- portion (%)
		Excellent (0.9-1)	Good(0.7- 0.89))	Pass(0.6- 0.69)	Fail(Below 0.6)	
Computer Program- ming	Fully un- derstands, masters, and com- pletes classroom practice	Program- ming is proficient, legal big data is well col- lected and analyzed, and infor- mation digitiza- tion is compre- hensive. Program pass rate is above 90%.	Programming is relatively proficient, le- gal big data is well collected and analyzed, and infor- mation digiti- zation is com- prehensive. Program pass rate is above 75–89%	Program- ming is moderately proficient, legal big data collec- tion and analysis are fairly good, and infor- mation digi- tization is relatively comprehen- sive. Pro- gram pass rate is 60– 75%	Program- ming is not proficient, legal big data collec- tion and analysis are inadequate, and infor- mation digi- tization is not com- prehensive. Program pass rate is below 60%	25
Data Collection via Computer						25
Submission of Digital Reports via Computer						25

4.3 The final Assessment will be Conducted Through a Closed-book exam. The Assessment and Evaluation Criteria are shown in Table 4 below

Table 4. Course Examination Assessment and Evaluation Criteria.

Knowledge Point	Basic Require- ments	Evaluation Criteria				Grade Propor- tion (%)
		Excellent (0.9-1)	Good(0.75-0.89)	Pass(0.6-0.74)	Fail(0-0.59)	
Course Ob- jective 1	Corresponding to Graduation Re- quirements	Completely met, quantitative exam questions completed well	Met, quantitative exam questions completed satis- factorily	Basically met, quantitative exam questions com- pleted average	Not met, quan- titative exam questions com- pleted poorly	30
Course Ob- jective 2	Corresponding to Graduation Re- quirements	Completely satisfied, quantitative exam questions completed excel- lently	Satisfied, quantita- tive exam ques- tions completed well	Basically satisfied, quantitative exam questions com- pleted moderately	Not satisfied, quantitative exam questions	40

					completed poorly	
Course Ob- jective 3	Corresponding to Graduation Re- quirements	Completely satisfied, quantitative exam questions completed excel- lently	Satisfied, quantita- tive exam ques- tions completed well	Basically satisfied, quantitative exam questions com- pleted moderately	Not satisfied, quantitative exam questions completed poorly	30

According to the course objectives, the first course objective is to master the main content of legal big data and the relevant legal regulations, and to understand the theoretical foundations of legal big data, which lays a solid foundation for the design and implementation of legal big data analysis and various information management. The second course objective is to master the techniques and skills for collecting legal data and information, and to be able to select and proficiently use related software and hardware for information collection, processing, and analysis systems, enabling rapid analysis and solution of complex legal issues. The third course objective is to understand the financial and legal logic of the big data era and its implementation paths, analyze data and personal information protection, and understand how big data is applied. Based on these objectives, corresponding exam questions are designed and provided for the assessment and evaluation of 30 students. The exam questions and achievement evaluation are shown in Table 5.

Table 5. Course Exam Objectives Achievement Evaluation Table

Course Name	Data Law			Course Code	012	
Course Achievement Evaluation Information						
Learning Outcomes		Learning Tasks, Process, and Observations		Achievement Evaluation		
Expected Learning Outcomes	Supporting Graduation Requirement Indicators	Pre-learning Tasks	Observation Points	Target Score (Full Score)	Student Average Score	Evaluation Result Coefficient
Course Objective 1	Graduation Requirement 1-1	Final Exam	Question 1, Question 2	3	2.8	0.91
		Regular Performance	Attendance, Classroom Responses	40	36.12	
Course Objective 2	Graduation Requirement 1-2	Final Exam	Question 1, Question 2, Question 3, Question 4	20	13.9	0.85
		Regular Performance	Regular Assessment	40	35.48	
Course Objective 3	Graduation Requirement 1-3	Final Exam	Question 1	26	18.33	0.78
		Regular Performance	In-class Lab Practice	40	33.96	

From Table 5, it can be seen that Course Objective 1 assesses students' understanding of the theoretical foundation of legal big data, which is essential for the design and implementation of legal big data analysis and the foundational knowledge of various

information management systems. The achievement evaluation coefficient for this objective is 0.91, indicating that students have mastered the majority of the relevant knowledge. Course Objective 2 evaluates students' skills in legal data collection technologies and techniques, enabling them to select and proficiently use related software and hardware for information collection, processing, and analysis to quickly analyze and solve complex legal problems. The achievement evaluation coefficient for this objective is 0.85, suggesting that students are quite proficient in legal data collection techniques and skills. Course Objective 3 assesses students' understanding of the logic and implementation paths of finance and law in the big data era, as well as their ability to analyze data and personal information protection, and how big data can be applied. The achievement evaluation coefficient for this objective is 0.78, which is lower than the previous two objectives, indicating that students' mastery of legal big data programming methods and practical skills is not solid enough.

The variation in the achievement evaluation coefficients reflects the effectiveness of course objectives' attainment.

5 Analysis of Achievement Discrepancy

The individual achievement data for Course Objective 1 was converted into a course objective achievement distribution for 30 students, and a distribution chart (Figure 1) was created. From Figure 1, it can be observed that 3 students (10.0%) did not achieve the objectives for Course Objective 1, indicating that individual guidance and support are needed for these students who face learning difficulties.

The achievement distribution for Course Objective 2 is shown in Figure 2. There are also 2 students (6.67%) who did not achieve the objective for Course Objective 2, and 1 student who barely achieved the objective. This suggests that individual guidance and support are required for these few students.

From Figure 3, it can be seen that 6 students (20.0%) did not achieve the objectives for Course Objective 3. Since this content requires integrating knowledge from previous lessons, it is more challenging for some students who did not dedicate enough time to homework and review. As a result, the achievement of this objective is lower. The assessment focused on concepts and diagrams, reflecting students' poor grasp of diagram drawing. In future teaching, more emphasis should be placed on explaining this knowledge and providing additional practice after class. Through activities like programming, collecting, and querying legal big data, students can deepen their understanding and mastery of the content required by the course objectives.

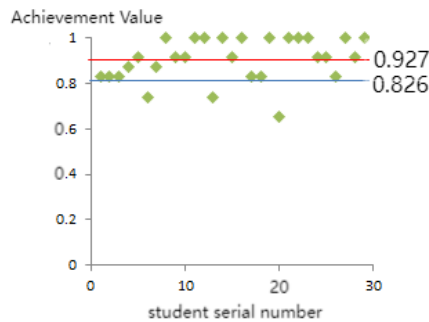


Fig. 1. Course Objective 1 Ability Distribution Chart.

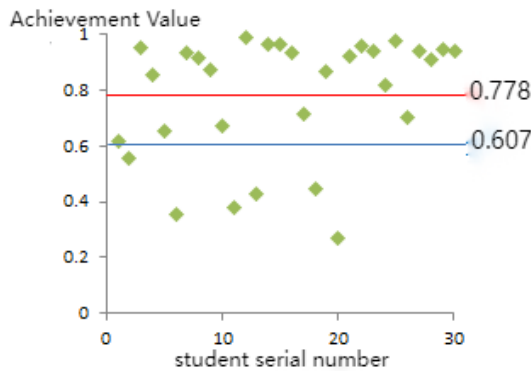


Fig. 2. Course Objective 2 Ability Distribution Chart.

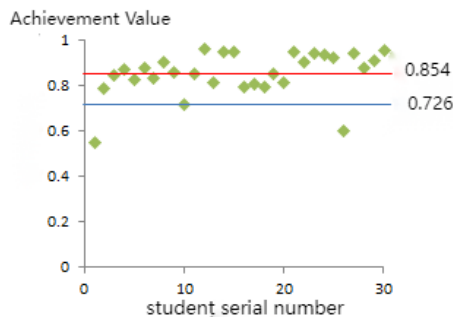


Fig. 3. Course Objective 3 Ability Achievement Distribution Chart.

By analyzing all students' exam papers, it was found that although most students' final answers were inaccurate, they followed the correct steps. However, the scores for

the final answer provided through diagrams were very low. In future teaching, it will be necessary to increase the use of examples that demonstrate how to apply various knowledge to solve complex problems. Additionally, the related scoring criteria should be improved to ensure that exam scores more accurately reflect students' actual abilities. The course objective achievement status of the students is shown in Figures 1~3.

To analyze the achievement of different objectives, the overall regular scores and final exam scores of the students were analyzed, with the results shown in Figure 4. From Figure 4, it can be observed that the achievement values for Objectives 1, 2, and 3 are all above 0.7. Additionally, the achievement of regular performance scores for the three objectives is relatively similar, and the regular performance achievement for Objectives 2 and 3 is higher than that for the final exam. However, there is a significant difference in achievement between the final exam scores.

After analysis, it was found that the higher achievement in regular performance is due to students' ability to refer to various materials to solve problems. The slightly lower achievement in the final exam is attributed to the closed-book nature of the exam. Therefore, in future teaching, there will be an emphasis on enhancing students' independent thinking and problem-solving abilities, especially when it comes to practical solutions to unfamiliar problems.

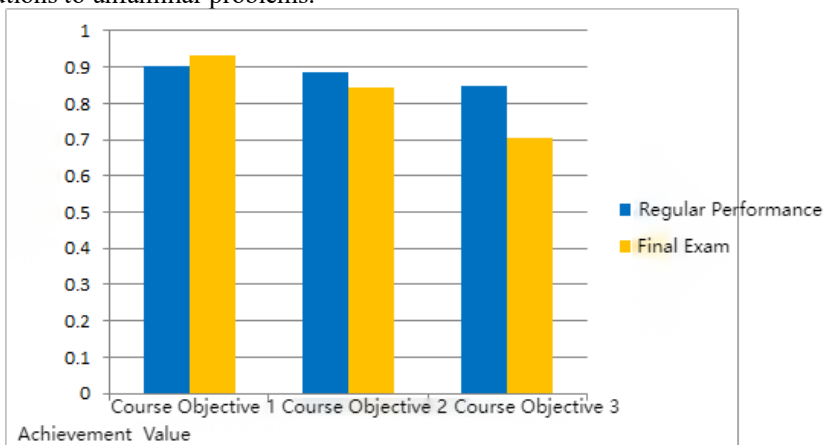


Fig. 4. Bar Chart of Course Objective Achievement.

6 Conclusion

The Data Law course is an interdisciplinary program that integrates big data, artificial intelligence, and legal studies, aiming to cultivate professionals who understand both law and big data. This paper sets course teaching objectives and evaluates the achievement of those objectives using methods such as attendance, classroom teaching and interaction, in-class lab practice, and post-class assessments, with designated weightings. The practice proves that this evaluation of objective achievement is feasible and has significant implications for the teaching effectiveness and high-quality development of the course.

Author Bio

Zhao Yuanwei, born in 1995, female, from Chengdu, holds a Master's degree from Sichuan University. Currently serving as a teaching assistant and staff officer at the Teaching and Evaluation Center of the Armed Police Officer Academy. Correspondence address: Police School Road, Chengdu, Sichuan Province, Postal Code 610200, Phone: 17380107007.

References

1. Ma Lei, et al. "Evaluation and Analysis of Course Objective Achievement in Road, Bridge, and Ferry Engineering Programs." *Western Quality Education*, 2023(21): 13-17.
2. Rong Huigui. "Research on the Outcome-Oriented Course Objective Achievement Evaluation Mechanism and Continuous Improvement." *Computer Education*, 2021(7): 107-109.
3. Zheng Wenjiao. "Research on the Path for Cultivating Interdisciplinary Talents in 'Artificial Intelligence + Law'." *Education Teaching Forum*, 2021(6): 181-183.
4. Bu Jianqiu. "Teaching Reform of 'Engineering Electromagnetic Fields' Course in the Context of Engineering Education." *Wireless Internet Technology*, 2020(10): 117-118.
5. Ma Wencheng. "Exploration of Course Teaching Effectiveness Based on Achievement Degree Analysis and Evaluation." *Heilongjiang Education: Theory and Practice*, 2020(3): 19-21.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

