

# Experiential Learning Through the Creation of an Investment Lab

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**Abstract.** *In this paper, using our actual experience as finance faculty, we go over the steps to build and run an Investment Lab at University. First, we explain how the curriculum may be changed in order to accommodate this experiential learning opportunity in a finance undergraduate program. We explain how a new course oriented towards portfolio management may be created. Next, we describe how the student body may benefit from this initiative. Why is an Investment Lab needed at a university? What are the disadvantages of not having an Investment Lab (i.e. losing market share to competition, not bridging between theory and practice, and so on)? What is the solution to these problems? We explain that the solution possibly requires a new "Applied Portfolio Management Concentration/Minor". As an example, we show what courses may be included under this new minor. Then, we go over the operational plan, including the business plan. We propose the establishment of a four-course minor, the lab, and a student managed fund. We explain how the whole operation will be financed. Then, we present the timeline and explain what needs to be done throughout the whole process. Finally, we go over the costs in detail. We believe that this paper will help other universities that would like to start an Investment Lab.*

**Keywords** investments, investment lab, Bloomberg, experiential learning, portfolio management

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## Introduction

In this paper, we provide a blueprint for establishing an Investment Lab at a university. We recently opened our Investment Lab at our main campus. We are planning on opening a second one at our second campus. Here, we explain how we accomplished this task at our university, which is the Northeastern State University in Oklahoma. We believe that this paper will guide other universities in establishing their own lab.

Experiential learning or immersive learning is very important for finance students. Generally, professors focus on the theory, but not on the practice. Some professors use case studies, which are also helpful. However, a student who wants to work in the industry needs to have a more hands-on experience. Many universities have

established their Investment Lab and use Bloomberg terminals and the Stock-Trak program to engage the students. Our university did not have the resources to do that until recently. Now, we have a brand-new lab where our students practice trading and learn the practical side of finance.

In this current paper, we first show how we designed our “Investments” major. The major includes six required courses (each with three credit hours) and two electives (each with three credit hours) chosen from three alternatives. We have two Applied courses under this major which are “Applied Financial Decision Making” and “Applied Investment Strategies” (which is a new course).

Then, we ask the question: “Why is an Investment Lab needed?” “How will the university and the students benefit from it?”. We explain the cons of not having an Investment Lab. At our university, as an answer, we design a new “Applied Portfolio Management” minor which would help us finance all of these expenses by attracting new students from different departments. We explain how this initiative will be financed and we present a timeline.

Finally, we go over the expected costs for Property, Plant and Equipment, and expected costs for Furniture Fixtures and Equipment. Of course, each department’s resources are different; therefore, each department’s major/minor design may be different. However, the general layout should be similar. Overall, we are hoping that this blueprint will guide other universities that are considering starting their own lab.

## 1. Literature Review

Previous literature on experiential learning in finance mainly focused on student managed investment funds and stock simulation programs. These are all hands-on experiences for finance students. These studies utilize funds and programs in a lab setting. In this current study, we focus on the actual establishment of the lab, rather than the actual use of the lab by students.

To teach their students about different types of investments, many universities and colleges have established a Student Managed Investment Fund (SMIF). Several research studies, such as Kahl (1997), Macy (2010), Charlton, Earl and Stevens (2015), D'Souza and Johnson (2019), Lawrence (2008), Clinebell and Murphy (2016), and Heck et al. (2011) have probed SMIFs in a college context. McInerney (2003) did the same for high schools.

Academics across the globe have been utilizing stock market simulation tools like Stock-Trak in their courses, with the intention of instructing their learners about the various kinds of investments in a hands-on way. There are numerous studies that analyze how games and simulations in business or economics classes promote students’ awareness and enthusiasm. Harter and Harter (2010) studied financial literacy among high school students and revealed that stock market simulations can significantly enhance financial knowledge among these students. Cebula and Toma (2002) discovered that these sorts of activities have a beneficial effect on students. Moffit, Skull and McKinney (2010) illustrated that learners’ knowledge- and interest-levels increase after undertaking such an activity.

There are several other studies that have examined the impact of hands-on learning in finance. He et al. (2008) employed Stock-Trak to compare face-to-face and computer-mediated communication teams. They demonstrated that even though face-to-face team members were likely to experience higher levels of trust and satisfaction in their collaboration process, computer-mediated communication teams eventually outperformed them. Felton, Gibson and Sanbonmatsu (2004) made use of Stock-Trak to inspect the influence of gender and optimism on students' risk aversion. They revealed that male students and more optimistic students had a tendency to take greater risks than others. Nguyen and Luthar (2015) showed that Stock-Trak had assisted their students in two ways: They had learned how to invest but they had also started to take notice of news broadcasted by prominent financial media. Guo, Bayer, and Blair (2013) have investigated the utilization of Stock-Trak in Executive MBA education. Lee et al. (2013) have used Stock-Trak to differentiate between male and female students’ behaviors which in turn affect how they perform. Wann and Lobo (2010) demonstrated that male students were more overconfident than female students (i.e. they had bigger and recurring trades). They also demonstrated that male students liked taking more risk (i.e. more derivatives trades and short selling). On the other hand, there was no significant difference between the two groups’ performances. Girard, Pondillo, Proctor (2005) showed how Performance Attribution Analysis could be integrated into a Stock-Trak simulation used in a class. Willey, Edwards and Gondhalekar (2008) demonstrated that a student's current scores on exams, cases and reports as well as his/her age were the strongest indicators of performance in online simulation. Welch (2014) demonstrated that simpler assignments

in simulations boost students' enthusiasm and participation in the game. Zhang (2022) examines how StockTrak can be integrated into introductory, intermediate and advanced courses. The author also shows how to use StockTrak to conduct trading competitions. Dedi et al. (2022) employed a survey to determine whether participation in virtual trading would stimulate students to do more investment research and whether it was considered useful. Most students found it useful or very useful and argued that it stimulated them to do more investment research.

As summarized above, the previous literature on experiential learning in finance mainly focused on student managed investment funds and stock simulation programs. These are all hands-on experiences for finance students. These studies utilize funds and programs in a lab setting. In this current study, we focus on the actual establishment of the lab, rather than the actual use of the lab by students. We delve into details of establishing a new lab in a state university. In future studies, we will explore how students' behavior change across different groups and under different scenarios.

## 2. The Investment Track

In our own experience, we find that our department needed to update its “Investment Track” (i.e. Major). When doing that, the department mainly used its existing courses with the addition of a new course titled “FIN XXXX – Applied Investment Strategies”. This new course is very important for this track. The table below (Table 1) shows the courses included in this track:

Table 1. The Investment Track (Major)

<b>Panel A. Required Courses</b>	<b>Credit Hours</b>
FIN 4193 - Financial Statement Analysis	3
FIN 4333 - Portfolio Management	3
FIN 4023 - International Finance	3
ECON 3013 - Money and Banking	3
FIN XXXX - Applied Investment Strategies	3
FIN 4383 - Applied Financial Decision Making	3
<b>Panel B. Elective Courses</b>	<b>Credit Hours</b>
FIN 4243 - Derivative Securities	3
FIN 3203 - Real Estate Principles	3
FIN 3613 - Insurance	3

Notes: Authors' own work. 6 hours of electives are needed.

Source: Compiled by authors.

The course description for the new course titled “FIN XXXX - Applied Investment Strategies” is shown below:

“FIN XXXX – Applied Investment Strategies

Studies of issues relative to portfolio construction and asset allocation. The course covers the process of setting, monitoring, and achieving portfolio objectives, diversification, hedging, and the role of ethics (fiduciary duties and responsibilities). Prerequisites: FIN 3633 – Investments, IS 3083 – Spreadsheet Analysis”

The Student Learning Outcomes for this new course is shown below:

At the completion of this course, the student should be able to:

- Understand the role of a portfolio manager and the ethical implications of managing money for institutional investors vs. high net worth, sophisticated individuals.
- Create and apply an investment policy statement by assessing the client’s willingness and ability while working within their constraints and liquidity needs.
- Select an appropriate equity mix and construct such portfolios using target risk and cash level constraints, security/market, trading, and derivative restrictions, and time horizon.
- Apply fixed income management principles, including understanding the bond market, yields, rates, cash flows, and risk measures.

- Apply methods of optimal allocation of assets, including mean variance framework and efficient portfolios using strategic, tactical, and dynamic strategies.
- Achieve more effective portfolio diversification by applying a global investment strategy and leveraging alternative asset classes including real estate, commodities, private equity, and hedge funds to achieve alpha.
- Apply performance measurement across portfolios, including basic understanding between contribution vs. attribution.
- Understand the differences across passive and active management, market timing, fundamental security selection, and sector rotation; distinguish growth vs. value, sector and style management.”

While our department included these six required courses and these three electives, depending on their current course offerings, other universities may want to include different courses in their major. Of course, one of the main limitations is the number of finance faculty. If the department has a very limited number of faculty, it cannot create many new courses. This was the case for our department, but we still did well, especially since we included to Applied courses.

### 3. Background for the Investment Lab

In most departments, there is a finance/investments club. The club organizes different activities including trips to NYSE to increase the interest in the program. Such a club is very important for a finance program. At our university, the student body that is focused on finance and economics at the university is the Finance and Economics Network (FEN). The FEN is a university recognized student club that aims to bring together students of all academic interests to discuss, analyze, and interpret financial and economic data and policy in the local community, the state, the nation, and the world. Through professional speaking series and investment related events, it is the purpose of FEN to reach the student body at the university to inform them of the importance and relevance of finance and economics and to raise and manage a student-managed investment fund. Overall, the FEN is a very active student club.

The important question here is this: “Why is an investment lab needed?”. For our university, we can say that there was a lack of applied offerings to enhance competitive skills for students’ job placement in the investment area.

- Losing market share to competition.
- Missing full-growth potential in the financial area.
- Less than desirable alumni and network involvement.
- Lacking tools to execute the bridging of theory to practicality.
- Absence of physical venue for like-minded individuals/professionals to germinate, experiment and analyze investment ideas and produce real monetary returns.
- Limited scholarship opportunities to attract quality students.
- Lack of practice and awareness of money management opportunities.

Then, the next question to ask is: “What is the solution?”. For our university, our solution was to:

- Create an aspirational, required four-course track that increases fee-based income and billable credit hours.
- Provide a pathway that students can gain expertise in applied portfolio management using real monies.
- Offer immersive learning experience that enhances marketability of graduates.
- Produce real monetary returns to provide scholarships, and to subsidize database subscription fees and students’ trips.
- Provide an environment that fosters an exciting atmosphere and culture and embraces cutting edge technology using the latest investment software platforms and learning tools that employers demand.
- Enhance the interested students to pursue a more rigorous investment curriculum.

- Broaden the interest of those who are less familiar with what finance can offer as a career.

Then, what kind of a product did we envision? At our university, our response was:

**PART 1: A required four-course track leading to Applied Portfolio Management Concentration/Minor**

**FIN 3633 – Investments**

Description: A first course in investments designed to develop a successful investment program. Topics include a discussion of economic and industry specific issues, a survey of securities, security analysis and valuation, securities markets, and securities laws.

**FIN 4193 – Financial Statement Analysis**

Description: An in-depth study of financial analysis utilizing an analytic framework and statistical tools to measure risk and predict firm performance. Computer modeling skills and techniques are developed to analyze financial or business strategies.

**FIN 4243 - Derivative Securities**

Description: An in-depth study of the characteristics of derivative securities including call options, put options, future contracts, forward contracts, and swaps and their use by businesses and financial institutions. Additional topics include risk analysis, hedging, arbitrage, and financial engineering to achieve financial objectives.

**FIN 4333 - Portfolio Management**

Description: Studies of issues relative to portfolio construction and asset allocation. The course covers the process of setting, monitoring, and achieving portfolio objectives, diversification, hedging, and the role of ethics (fiduciary duties and responsibilities).

**PART 2: An Investment Lab**

- The investment lab will provide an environment where students and faculty members will have access to leading-edge financial analysis software and real-time international financial data.
- Provide an environment that fosters an exciting atmosphere and culture and embraces cutting edge technology using the latest investment software platforms and learning tools that employers demand.

#### **4. Operational Plan**

First, we would like to talk about our business model.

##### **The Business Model:**

Value added proposition(s):

- In order to justify the investment in the finance lab, in the long run, we are proposing establishing a student managed investment fund whereby participants will get the most return out of the investment lab.
- Provide an environment that fosters an exciting atmosphere and culture and embraces cutting edge technology using the latest investment software platforms and learning tools that employers demand

1. Four-Course Track Concentration:

Source of funds:

- \$45 investment lab student fee for each of the required credit hours
- 12 billable tuition credit hours per student

2. The Investment Laboratory:

Investment:

- Property and Plant: \$70,000
- Software and Peripherals: \$50,000

Use of funds:

- Annual subscription fees: \$15,000

3. Student Managed Fund:

Assets Under Management (AUM):

- To be determined

Return on Investment:

- Global Index as benchmark

Are there any recurring income opportunities? For our university:

**Recurring Income Opportunity:**

- Fees Applied to Existing Scenario: \$10,000/year
- 10 finance graduates per semester, 20 graduates per year
- 4 required courses (i.e. 12 credit hours total)
- \$45 investment lab student fee for each of the required credit hour

Fees Applied to Projected Scenario (3 years): \$16,000/year

- 15 finance graduates per semester, 30 graduates per year
- 4 required courses (i.e. 12 credit hours total)
- \$45 investment lab student fee for each of the required credit hour

Did we design this to attract finance students or students from other departments? Our objective was:

**Source of Students for the Newly Created Minor:**

Students from other majors would find the financial rewards and career prospects of money management appealing. The rigor of the discipline would provide the challenge of the quantitative skills that these groups of students have. We believe the student managed fund and the investment lab would likely attract this type of clientele.

- Mathematics majors
- Physics majors
- Chemistry majors
- Engineering majors
- Computer and Data Analytics majors
- Accounting majors

Are there any other projected income opportunities? For our university:

**Other Projected (3-5 Years) Income Opportunity:**

- FEN Speakers Series Membership Dues: \$5,000/year
- Annual Returns on Student Managed Fund: \$10,000/year
- Tuition from Four-Course Minor: \$95,000/year

Assumptions:

- FEN Speakers Series Membership Dues: 50 members at \$50 each
- Annual Returns on Student Managed Fund: 10% on \$100,000 AUM
- Tuition from Four-Course Minor: \$265\*12 credit hours\*30 students

What will be our timeline? What tasks should be performed in each step?

## **Timeline:**

Year 1:

Initial Stage:

- Request for student lab fees in fall semester
- Unofficial use of the investment lab for classes
- Demo accounts and certificate training for investment faculty
- Start sales of FEN membership dues for the Speakers series
- Fund Raising for Student Managed Fund
- Compete in TU Investment Challenge

Year 2:

Roll Out:

- Begin using student lab fees to subsidize software subscription in the summer of Year 2
- Official use of the investment lab for classes
- Start Student Managed Fund
- FEN Annual Investor Conference and Golf Tournament at Shangri La

Year 3:

- Kick Off:
- Ramp up the fundraising activities
- Show returns from managing Real Monies
- Start generating annual report for Student Managed Fund
- Compete in an out of state investment competition (e.g. UT Dallas Investment Challenge)

Year 4:

- Ramp Up:
- Begin Bloomberg subscription
- Compete in CFA Equity Report Challenge
- Establish annual return track record
- Establish endowment for advisor to the Student Managed Fund (CFA, CFP, Ph.D. credentials)
- Leverage CFA Institute scholarship opportunities

Year 5:

- Full Gear:
- Quinnipiac Annual Investment Competition in New York City
- Continue to compete in other competitions
- Continue to grow the Student Managed Fund
- Scholarships and trips to NY from returns of the Student Managed Fund

In the next section, we detail the costs.

## **5. Financials**

### **PART 1 – Property, Plant and Equipment**

Below are the estimates for the Project's Property, Plant and Equipment:

Project Square Feet	900	
Project	Finance Lab Estimate	
Date	11-Dec-20	
Total \$	\$100,000	
\$ Per Square Feet	\$77.78	
Demo	\$1,500.00	General
Masonry (Lintel/Beam/Columns - repair West Wall)	\$9,500.00	Steel, labor, block, block demo
Storefront Door	\$6,500.00	3/0 door, sidelite, transom, includes demo
Storefront Windows	\$5,500.00	Windows - Materials and Labor
Electrical (reduced with furniture orientation/no fur out)	\$8,301.75	New power, New lights, controls
HVAC (flex for new grid layout)	\$1,600.00	Register/Grille relocate/additional duct
Framing/Gyp Assembly (omitted for savings)	-	Furout and gyp assembly
Flooring (Hallway option - laser jet LVT)	\$4,500.00	demo and relay at \$5 per foot
Paint/Vinyl Graphic	\$4,800.00	Existing or New Walls
Ceiling (w/ insulation)	\$3,600.00	New Ceiling and Grid @ 4/ft
IT/Access Control (no additional switches)	\$3,800.00	(6)new drops - Access Control is \$1,900 (per Darin)
Signage (hallway side)	\$1,500.00	At Hallway
Fire Alarm (device relocate)	\$750.00	Per Code
Window Treatments (blinds, frosting, etc..) (Omitted)	-	At new doors and windows
Miscellaneous/Contingency	\$6,222.21	
FFE		
Subtotal	\$58,073.96	
GC Fee	\$5,185.18	10%
A/E Fee	\$6,740.73	13%
<b>Total Construction Cost</b>	<b>\$70,000</b>	

**Figure 1. Costs of Property, Plant and Equipment**

Source: Compiled by authors.

## PART 2 – Furniture Fixtures and Equipment

Below are the estimates for the Project's Furniture Fixtures and Equipment:

	2021	Comments
MorningStar Direct Access (FFE)* Sole Source	\$11,000	Fee based annual subscription – professional specialized database needed for data
LED Ticker -16' (FFE)	\$10,384	Display real time data in a manner that is visually enhancing to the lab which will increase
Display Monitors (2-3) (55"-65")	\$2,720	Broadcasting massive amount of pertinent investment information in a centralized
Wall Mounting of Tickers	\$1,200	Handled by Rise Display
Wall Mounting Monitors (FFE)	0	Included in the NSU capital budget
Stock Trak (Portfolio Simulation)	0	To be paid by students, \$32 for 18 weeks
Financial Data License for one monitor* Sole Source	\$1,499	Functionality of the lab, create a professional atmosphere and ad the visual appeal for
Ticker software and content* Sole Source	\$599	Cost per Ticker; Provide real-time data for holdings of the student managed fund;
Intel Media Player (1)	\$681	Each of the single large format displays that have installed in the room will require a NUC
Site Visit	\$399	Site visit by Rise Display
Miscellaneous/ Contingency	\$1,550	Audio and Visual Equipment and others, Training opportunities and broadcasting annual donors meeting and FEN Speakers Series; Recruiting purposes
TOTAL	30,032	
* Annual subscription	\$13,098	\$11,000 + \$1,499 + \$599 = \$13,098

**Figure 2. Costs of Furniture Fixtures and Equipment**

Source: Compiled by authors.

## Conclusion

In this paper, we provide a blueprint for establishing an Investment Lab at a university. We explain how we accomplished this task at Northeastern State University in Oklahoma. We believe that this paper will guide other universities in establishing their own lab.

First, we show how we designed our "Investments" major. The major includes six required courses (each with three credit hours) and two electives (each with three credit hours) chosen from three alternatives. The required courses are Financial Statement Analysis, Portfolio Management, International Finance, Money and Banking, Applied Financial Decision Making, and Applied Investment Strategies (which is a new course). The electives are Derivative Securities, Insurance, and Real Estate Principles. We present the course description and the student learning outcomes for the newly created "Applied Investment Strategies" course. This course will be essential for the whole program.



Second, we explain how our student club (Finance and Economics Network) works. We ask the question: “Why is an Investment Lab needed?”. “How will the university and the students benefit from it?”. We explain the cons of not having an Investment Lab. We explain that, besides the Lab, a new minor focused on Applied Portfolio Management would be needed. In this minor, we include four required courses (Investments, Financial Statement Analysis, Derivative Securities, and Portfolio Management).

Third, we go over the operational plan, including the business plan. We propose the establishment of this four-course minor, the lab, and a student managed fund. We expect to draw students from different areas like Math, Physics, Chemistry, Engineering, Computers, and Accounting to this newly established minor. These new students and the tuition generated would help us run the operation. We explain how the whole operation will be financed. Then, we present the timeline and explain in detail what needs to be done throughout the whole process.

Finally, we go over the details of all the costs. First, we show the expected costs for Property, Plant and Equipment. Then, we show the costs for Furniture Fixtures and Equipment. We are hoping that other universities will use this blueprint as their starting point. Of course, each department’s resources are different. For example, another university may want to include other courses in the major or in the minor, depending on their current course offerings. However, the general layout should be similar. In the end, we believe that experiential learning is invaluable for all finance students. Therefore, we highly recommend the establishment of an Investment Lab by all universities.

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