

ANALYTICS CONSULTING LAB SYLLABUS SPRING 2021

JANUARY 21, 2021 UPDATE

Background on the Analytical Consulting Lab

The Analytics Consulting Lab (ACL) is part of the Foster experiential learning initiative. The specific interest in the Analytics Consulting Lab comes out of the deep demand for business leaders that can provide guidance in analysis and focus that analysis to specific business questions. Additionally, many recruiters and employers have commented that finding talent that bridges the business and analytical communities is difficult. The ACL strives to provide a real-world learning experience for students to work with sponsoring companies on business questions that revolve around analysis. Students work in teams using analysis (broadly defined) to answer current and important business questions.

READ THIS!!!! Course Expectations

Analytics Consulting Lab is an experiential class, with a strong focus on the application of analytics and market measurement in a real-world, client-facing, consulting environment. It provides an excellent opportunity for Foster MBA students to get real-world experience in consulting and in applying analytics and market measurement techniques to actual business challenges and opportunities.

Therefore, it is important to set some very important expectations in regards to this class:

- **The class does NOT involve lectures to present new theory or analytical techniques. Students seeking new analytical techniques or lectures on analytics, primarily, should consider other courses for that goal. This is a class on the application of analytics in a real-world, team-based environment.**
- **You will work in a team. Team dynamics will be instrumental in your experience. It is important that you are available, accountable, dedicated, and willing to contribute in a team. In most cases, you get to choose your teammates. Be extremely open and honest with your teammates in terms of their contribution and hold each other accountable in a supportive and respectful manner.**

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- **The Professor is your advisor, coach, aide, and sounding-board.** He is here to help you in your journey through the project. **The MBA team is in a leadership role to execute the project, communicate and present to the client, and formulate recommendations.**
- The Professor can help you with reviewing regression, analytical concepts, data visualization, consulting best practices, and most any topic that arises on the project. **Execution of the project is, however, the responsibility of the MBA team.**
- **Each project in ACL is unique, real, and driven by an actual client-facing challenge or opportunity.** Your project will vary from others. Projects have different goals, different analytical opportunities, and clearly different clients. You can apply for the project(s) that most interests you.
- **ACL is a lot of work, a lot of learning, and a lot of fun.** Many students consider it a top Kellogg experience. Be sure that your schedule, life, and other commitments permit you to get the most from the class.

Course Details

The ACL is offered as MKTG 579.

Most projects in the ACL are sponsored by Seattle-based firms, professional contacts of Dr. Walker, and alumni of the school, at very senior levels in their organizations.

Students taking the ACL are assured a strong learning experience and a commitment from the firm to provide access to decision maker and information that will make the experience meaningful.

Application Process

Students interested in the ACL must select MKTG 579 during elective bidding. Once in the class, email Dr. Walker of your:

- Project Choice #1
- Project Choice #2
- Any fellow desired student for a team (limit of one student to specify). Team member preference is only considered if both people select each other.
- Other information that you may wish to share in your application, personal goals, career aspirations, etc.

Student teams that are fully formed (a team of 5) are encouraged and will be given special preference. If you are forming a team and submitting as a team, do make that clear in the application and stress how your team has come to select the project and how it meets your goals.

Student information in the application process is used in formulating teams and assigning projects so that goals, backgrounds, skills, and expectations are all best aligned.

Project Assignment

Student assignments to client projects will be based on individual preferences, requested skill sets and industry experience, and team member diversity. Every attempt will be made to grant students their first or second choice of projects. Student information is collected via the application. Students may select one fellow student for a project. This fellow student selection is honored as possible, if the both students select each other. Students will be notified about their project assignments during the term before the class. All efforts are taken to accommodate first choices, while forming teams with an appropriate set of skills and interests.

Case Packet and Readings

As this course is an experiential one, there are no specific cases to prepare. However, many students have looked for examples of companies that have excelled at Analytics. Also, as the course emphasizes consulting and best practices in a professional client engagement, there is a need to consider some of these best practices. Given this, the following texts are recommended and optional:

- 1) The McKinsey Way, Ethan M. Rasiel, McGraw-Hill
- 2) From Big Data to Big Profits: Success with Data and Analytics, Russell Walker, Oxford University Press, 2015.

These texts are easily purchased on-line, so these are not requested in the bookstore.

Course Meetings

As with other experiential courses, the focus is on the team project and its delivery to the sponsoring company.

Teams will meet with the Professor on a regularly and frequent basis in order to discuss the analysis, flow of work, final presentation and delivery to the sponsoring team. The class will also meet with the prescribed schedule to review concepts and themes important in being successful with the analytical consulting function and in order to provide presentations for the purpose of group learning.

All Group Meetings are to be held with the team and the Professor at a pre-defined time that works mutually. Meetings with the Professor and Client must conclude before 4:30PM on weekdays. Students who cannot make meetings in person are encouraged and welcome to join via telephone.

Pre-term activities

- Project identification
- Team formation
- Identification of Team Liaison to Client
- Identification of Team Liaison to Professor
- Client Introduction
- Project description
- Schedule first group meeting with Professor

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Schedule first client meeting with Client

Week I:

Class Session I

Getting Started with ACL
Managing Project Ambiguity
Managing Teams
Overview of the Consulting Approach
Dealing with Data, Descriptive Statistics
Using Tools: JMP, Excel, Tableau

Week II:

Group Meeting I:

Developing a Work Plan, Project Analysis
Examples of Past Analysis
Use of Graphics, Best Practices in Presentation of Data
Building Points Through Analysis

Week III:

Group Meeting II:

Preliminary Analysis of Data
Teams to bring descriptive statistics to meeting with Professor
Work Plans due to Professor

Week IV

Group Meeting III: Focus on Data and Analysis
Address questions and issues in analysis

Week V

Group Meeting IV: Prep for Midpoint Check-in

Class Session II

Mid-term progress review and **team mini-presentations**
Mid-point document due at beginning of class
Mid-point team and mid-point peer feedback due to professor

Week VI :

Group Meeting V:

Mid-point feedback, planning for next phase

Week VII

Group Meeting VI:

As per team needs

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Week VIII

Group Meeting VII:
As per team needs

Week IX

Group Meeting IX:
Dry-run of presentation with Professor

Week X

Class Session III

Project Findings

Final project deliverable due to Professor and Client on last

Wednesday.

Meetings with Clients to be held and presentations made to client in person during or before final week of classes.

As in any professional consulting engagement, the students are requested to regularly meet with the client to receive input, data, direction of project goals, and feedback on the progress as needed. All clients are committed and dedicated to fulfilling the learning and business aspect of the project.

Teams may schedule additional time with the Professor as needed and as available.

Grading

Grading of the project is driven largely by the quality of the team project. The Professor will evaluate the project, its analysis, presentation, and delivery on the following major points:

- Analysis:
 - Quality of analysis (thoroughness, appropriateness)
 - Clarity and quality of model summary and description
 - Intellectual impact (was the analysis creative, novel, clever, or otherwise compelling?)
- Project Document
 - Quality of project description
 - Quality of analysis summary
 - Quality of recommendations and conclusions
 - Use of meaningful graphs, graphs, and presentation of data
- Presentation Documents
 - Quality of presentation
 - Professional impact of the presentation
 - Ability to communicate main points of the analysis and recommendations
- Team Meetings
 - Preparation
 - Organization
 - Progress

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The Professor will ask the client company to provide feedback on the same above points.

Peer evaluations will also be collected from each member. Each student must rate their teammates on the following dimensions:

- Intellectual and creative contribution
- Workload and willingness to take initiative
- Organization, preparation, and availability
- Collaboration and respect for peers

Peer evaluations will be on a 1-10 scale with 10 being excellent and 1 being poor. All peer evaluations will be treated confidentially.

All ACL students must participate, as participation is also important to make this a meaningful learning experience for all involved.

Grade Breakdown

Professor Evaluation of Final project materials and presentation:	30%
Professor Evaluation of Work plan and Mid-point review:	20%
Client Evaluation of Final project materials and presentation:	10%
Peer Evaluations (*):	20%
Professor Evaluation of Preparation during meetings and participation:	20%

* Note: The Professor reserves the right to adjust any student's final grade up or down by a full letter grade in the event that the student's peers unanimously score his or her contributions significantly above or below the overall team effort.

Role of the Professor

The Professor serves as an aide, counselor, and advisor for the team. The Professor does not conduct the analysis, but will provide detailed direction on analytical approaches. The Professor does not serve as the team liaison or representative to the client. The team must organize itself and identify such a liaison. The Professor may accompany the team to select team meetings and or participate in calls, but the Professor cannot in practically, attend all such meetings.

In the event that the client or the ACL student team encounter an incompatibility or encounter an issue, the Professor will intervene to remedy the situation.

The Professor may also resolve project assignments, as needed.

Role of the Team

The team will consist of 3 to 5 Foster MBA students working as a team to complete analysis, as defined by the client as agreed to before the start of the academic term.

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The team should be mindful to control the amount of time that is required of the client. This means being prepared for meetings, having a designated liaison to schedule meetings, request information, and follow-through with next steps. This level of preparation and understanding is needed as most clients sponsor this project but do not allocate a full-time associate to work with the ACL team.

The team should expect to contribute about 400-500 hours over the 10-week period to this ACL project. This is a reasonable expectation for a team working on a project and is consistent with other experiential and lab courses in other MBA programs. This translates to 8-10 hours per person per week.

The team will produce a white paper that documents the study, results, and recommendations. The team will also prepare a presentation and deliver it in person to the client and its team. A reduced version with emphasis on key findings is also to be presented at the last class.

Role of the Client

The client provides the real-world learning opportunity, data needed to complete the appropriate analysis, and feedback on the quality of the project and its analysis. The Client is not expected to solve the problem, but should provide ample expertise, data, and contextual information to the ACL team.

Prerequisites

All students in the ACL must have completed a statistics class. There are no other requirements.

Some FAQs:

What is the Analytical Consulting Lab?

It is a course available to Foster MBA students that are interested in the use of analytics in business. Students must take specific prerequisites and have strong academic performance in such classes to take the Analytics Consulting Lab. Students work in teams to resolve a real-work business problem using analytics.

What do you mean by Analytics?

It is meant to be broad but includes the use of specific quantitative approaches, such as regression analysis, time series analysis, forecasting, market segmentation, data mining, optimization, logistical analysis, scenario simulation, and risk analysis, as examples. In particular, we mean solving a business problem using data and applying one of these quantitative approaches.

How does this experience benefit the students?

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Foster MBA students taking the ACL will work on a real-world problem under the direction of Dr. Walker. The opportunity to apply analytical theory and learn about a business, make recommendations, and bring together many aspects of their business education is unparalleled. We also ask that the students focus on how to communicate the results of analysis in the context of business decision-making. For students interested in moving to an industry to deep in analytics after graduation or developing new business skills in analytics, this course will be very attractive.

The Analytics field is one of the most demanded in the workforce and students have expressed deep interest in developing strong skills in analytics. This course meets an interest in our students and provides them an exceptional experiential learning opportunity.

How does the Client benefit from this opportunity?

The ACL is an intensive analytics elective that attracts some of our most analytically talented MBA students. It is expected that the student group of 5 will commit about 500 working hours to the project. Additionally, the student project will be overseen by Dr. Walker, who has 20 years plus experience and deep expertise in analytics and its application in business.

We expect that the project deliverables, recommendations, and report will provide direct value to your organization. However, we also believe that the project provides your organization and opportunity to determine how and where to invest in more analytics. If this includes the acquisition of more analytical talent, the project provides an excellent conduit to members of our student body that are talented and interested in this space.

How does the team work with the Client?

For the student team, the partnering company is a client. They will conduct their analysis and provide recommendations through a report and presentation in the same format and in the same manner as a consulting service. The faculty member also serves as an important liaison between the partner and the student, serving to manage time commitments and negotiate deliverables. It is expected that the student team can meet with and speak with key members of your team that can help them answer questions relevant to the analysis.

Which software will we use?

It really depends on the project and your familiarity with software packages. This course is software agnostic, meaning most software packages are acceptable. The course does not have as a goal to teach a particular package, but rather to enable analytics in a business project. You are welcome to use software of your choice. Most projects can well be completed with a combination of Excel and one statistical package. If you are unsure or unfamiliar with statistical software, we will discuss that during our first meeting. Some packages may have a minimal cost.

What about the data?

To make this experience valuable to the students and the to solve the business problem at hand, we do need access to data. It is important that the data be available before the project begins. Additionally, the project should make use of “scrubbed” data, that is data that is free of specific information that would be sensitive or otherwise governed by a law, such as social security numbers of customers or names of customers.

What types of business problems can be considered?

As analytics is helpful in many business functions, we are open to many applications of analytics. Specific business problems in marketing, forecasting, customer segmentation, pricing, commodity analysis, logistics, risk management, operations, inventory leveling, supply chain improvement, and scenario planning are sure to provide great analytical opportunities.

Will the analysis become public?

The work between the students and your organization is considered confidential. If necessary, the students may be asked to sign a non-disclosure agreement. If this is necessary, we ask that the non-disclosure agreement be such that it does not prevent the students from seeking employment or from building on their experience gained on the project.

From time to time, such company-student projects lead to very interesting business lessons. As a leading business school, we are interested in sharing such lessons with our next generation students and business leaders. We do this through business cases. If such an opportunity exists with your project, we will seek your permission to relate the business lesson through a case study.

How to I join the Class?

First, you must meet the prerequisites. Then submit your project selections to Dr. Russell Walker upon entering the course.

Contact Information

Please contact Russell Walker, Ph.D.

Via e-mail: rwalker1@uw.edu

SPRING 2021
ACL PROJECTS

MICROSOFT

Company & Project Background - Microsoft sellers and support agents need to understand where the “customer is at” in order to know “where to go”. The C+AI Customer Portal is one of the primary tools used to research a customer. The portal provides deep insights into trends for a customer’s product usage (ex. Azure services), where the customer is struggling (ex. support tickets), and recommendations for the next services or programs believed to be the most appropriate for where they are in the Microsoft journey. Internal users also leverage the Customer Portal as the source of truth about a customer to verify data, dig into analysis outliers, and land insights with field agents at scale.

Problem/Challenge Statement – The project will be analyzing telemetry about how end users interact with the Customer Portal. The end goal is to understand which widgets provide the most value (or not), as well as the journeys took when interacting with the data.

Scope of Work - We are looking for insights into user patterns of the Customer. These will drive product development decisions on future UI improvements such as reordering widgets to maximize impact or creating a new Customer Portal experience tailored to different journeys taken by users.

Deliverables - We would like a report identifying some of the following:

Top user personas – who, what, when

The widgets being interacted with the most,

Most common funnel of actions,

Blockers in these funnels

Commitments – We can provide data, mentoring, meetings with the Customer Portal PM, exposure to Microsoft culture, and guidance on how we think and use Azure data. The end project will be presented in front of Customer and Partner Growth Analytics leadership and the broader team.

Skills & Experience – Create meaningful impact on a tool used by the broader Microsoft field agents and internal data scientists, engineers, and PMs. Think critically about how to measure value and use cases of this critical internal tool. Presentation practice in front of leadership. We are happy to collaborate with the Foster MBA consulting team as well if there are specific experiences aligned with this project that they would value.

ÆONLAW

Global Intellectual Property Reciprocity Tracking Dashboard

Company (aeonlaw.com):

ÆON Law is a high technology intellectual property law firm focused on patent, trademark, copyright, trade secret, and related IP matters. We work with clients and other law firms all over the world.

Project:

One challenge ÆON Law faces when working with other law firms is to balance reciprocal workloads with firms in different countries.

For example, if ÆON Law sends Firm A one patent project, how many return trademark projects should ÆON Law consider an adequate response?

Another example would be if ÆON Law has four firms we could send projects to in a given country, how should ÆON Law choose which firm to send the project to?

This project would involve working with ÆON Law's accounting team, international filing team, and the Founding partner of the ÆON Law, Adam Philipp

ÆON Law is looking for a country-by-country dashboard with relevant country-level information based on past transactions with firms in that country and firm-specific dashboards that will show reciprocity levels. One particular goal is to identify opportunities in overlooked jurisdictions, particularly in Asia, where there is intense competition on legal service pricing.

People:

Adam Philipp

The Founder of ÆON Law, Adam Philipp, is a patent attorney and the head of the patent department at ÆON Law. Adam has been involved in the prosecution of patent applications in computer science, electrical devices, consumer products, blockchain, cryptography, cryptocurrencies, and related fields since 1998 and with Internet and technology-related law since 1995. He also counsels clients on intellectual property portfolio strategies and infringement matters.

Adam Philipp is also a teaching professor in cybersecurity at UW Foster School of Business's MSIS program.

CHANGING TASTES

Project 1: What Should We Eat Next? How Will the Long-Term Effects of COVID19 Reshape Innovation in the Food Sector?

The U.S. is the world's largest food market. Before COVID, \$1 out of every \$4 spent on eating out globally was spent in the U.S. and about \$1 out of every \$5 on food overall. For decades, the playbook for introducing new foods, producers, cuisines and other kinds of eating habits in the U.S.: have chefs at independent restaurants put something new on the menu, if it works, larger corporate restaurants copy them and offer it to millions of diners in a low risk environment: order it, see how its cooked and see if you like it. Then buy it and make it at home. In store sampling in grocery stores also helped with more familiar foods, such as items with new flavors.

Then COVID 19 changed it all. Over 10,000 independent restaurants are closed and most are on their way to shuttering as social distancing and reduced occupancy collides with already low margins. There's also no sticking your hand into a tray of food at the grocery store and inventory management has taken a priority over finding shelf space for new items. So how will new food products successfully enter the market, or "tastes be changed," in the post-COVID era?

That's what this project will answer. There's be no shortage of launches by big and small companies since March 2020, which can be evaluated, as well as looking at parallels in other industries that relied on small retailers and "foot traffic" as the gateway to change.

Project 2: Go fish or Stop Fishing? At What Point Does the Business Case for Continued Canned Tuna Production Change?

The market for canned tuna is a bit of a mess: sales in the U.S. market continue to decline (aside from a brief spike during COVID) along with popularity and frequency of consumption, recent revelations about forced labor and price fixing have come to light, and populations of tuna decline in major Pacific fisheries making catching them more of an effort. Still production continues on at the world's three largest companies that produce the large majority of the all canned tuna: Thai Union (Chicken of the Sea), Dongwon Industries (StarKist) and FCF Fisher Co Ltd (Bumble Bee). All three companies are actively diversifying by investing in and acquiring companies that produce other kinds of fish and seafood. Their tuna canning operations continue on, with some recently acquired in distressed sales.

With this project, we hope to answer the question: when does the business case for continued operations end and is the industry “kicking the can down the road.”

These companies also have joined in Fishery Improvement Projects that pledge to improve the way fish are caught in order to preserve fish populations and ocean health while externalizing costs such as investing in new boats and paying fisherman (or not). If market trends continue, when does the business case for canned tuna change at these largest companies and production end? If labor is paid fairly, fuel subsidies go away, and the like does this change the time horizon? And how does it compare to their deadlines for sustainability commitments and improving ocean health (or have these already been missed or moved)?

Project 3: A Cellular Future.... will “cultured meat and fish” become part of our future? And what will it mean for Real Animals and Farmers

Venture capitalists, animal welfare organizations, some of the most forward-looking innovators and corporate partners are all excitedly leaning into cellular agriculture and making replacements for animal products including meat and fish first in the lab and perhaps then in the factory without involving animals or killing them. While cultivated meat may be a better term than “lab grown” or “brewed,” which quickly disappeared, the fundamental shift is towards manufacturing something that used to be grown and done so in more diverse locations by both big and small producers.

With this project, we answer the question: What will the transition look like over perhaps 5-10 years. What will the ability to produce cellular meat and fish mean for the land, the environmental impact of livestock production, and the smallholders who have been raising animals or fishing for them. How? By finding 3-4 case studies where other sectors have moved from distributed to centralized, from reliant on natural conditions to separated, and describe the transitions, then make some predictions about both cellular companies and traditional producers and legacy companies.

Note on Data and Analysis: As these projects are about future market developments, some market measurement and data assembly from public sources will be required and analytical forecasting and prediction involved.

Teams may select one of the projects.

Arlin Wasserman and Changing Tastes are each ACL alumni clients my Kellogg program!

LAWRENCE AND SCOTT

Selling High-end Luxury Items On-line

Project description:

Lawrence & Scott is one of the longest-running Seattle original high-end luxury brand for home decor and lighting products "to-the-trade" since 1961 ("To-the-trade" means selling exclusively through interior designers). The new ownership acquired the business in 2019 and is looking to revitalize the business, and bring it up to 21st century. While the end-user clients "write the checks", most of the design decisions are made by the clients' interior designers. To raise awareness among designers, Lawrence & Scott has been doing in-person marketing and online advertising through Google Ads (to increase brand awareness) and Instagram/Facebook ads (to generate leads and sales). The project will identify the optimal mix of marketing methodology, based on previous Ads data, and includes market research to "crack the code" of this quickly changing market.

Leo Lam, PhD is the owner and is a UW and Foster alumnus!

PAULA'S CHOICE

SKINCARE KOREA

Paula's Choice - Who we are

- Website: <http://www.paulaschoice.com>
- Industry: Cosmetics / Skincare
- Company size: 51-200 employees
- Headquarters: Seattle, WA
- Type: Privately Held
- Founded: 1995
- Global Presence: US, Australia, EU (Austria, Belgium, Germany, Netherlands, Norway, Romania, Switzerland, UK), Korea, Japan, Taiwan, Hongkong, Vietnam, Singapore, Malaysia, Thailand, India, Kazakhstan

35 years ago, Paula Begoun shook up the beauty world with radically honest, straightforward talk about which skin care products would help and which wouldn't. She firmly believed (and still believes) that consumers deserve the truth, no matter what.

Determined to find a solution to her own struggles with acne and eczema, Paula began studying product labels and realized she'd been putting the wrong ingredients on her face. She finally understood why her skin often got worse. From that point on Paula dedicated herself to learning everything she could about the science of skin care and sharing that knowledge to help others, even if it cost her a job.

20 bestselling books on beauty, regular talk show appearances on CNN, Oprah, The Today Show, 20/20 Dateline, The View, and Dr. Oz, the creation of Beautypedia, her research-based skincare and makeup review site, plus thousands of consumer requests eventually lead Paula to start her own line of groundbreaking skin care products in 1995: Paula's Choice Skincare.

Our founder's commitment to uncovering and telling the truth is alive and well today and drives every aspect of our business. We understand the need for skin care that keeps its promises — Paula wouldn't let us have it any other way.

You deserve smart skin care choices—minus all the hype.

Our philosophy? Smart, Safe Beauty. The products you use should work and be good for your skin, no exceptions. Based on our heritage in consumer advocacy, each of our formulas is effective, safe and backed by cited scientific research.

We uncover the truth about skin care and share all of the facts with you along the way—because keeping your skin healthy shouldn't be a mystery.

+ SMART + SAFE + EFFECTIVE + FRAGRANCE-FREE + CRUELTY-FREE



Paula's Choice Korea

Paula's Choice Korea was founded in June 2007. Upon the establishment, Paula's Choice products were sold immediately through the official Paula's Choice Korea website (DTC) and various online shopping platforms in Korea, including Daum Shopping (one of the biggest shopping platforms at the time).

In May 2008, Paula Begoun's book "Don't Go to the Cosmetics Counter Without Me, 7th Edition" was published in Korea, and Paula visited Korea to speak to the public, after her appearance, Paula started to be recognized as "The Cosmetics Cop" in Korea. Paula quickly gained popularity as a skincare authority known for providing science-backed skincare formula, her knowledge about skincare ingredients, and her commitment to discovering the truth about skincare myths and false advertisements.

In 2010, Paula's Choice's first-ever flagship brick-and-mortar store opened in Gangnam, Korea. In 2011, the second branch opened in Hongdae, providing more opportunities for her fans and customers to check out products in person. Now, Paula's Choice Korea is working with Korea's mainstream Health & Beauty stores such as LOHBs and Olive Young, catering to many consumers' needs and requests.

Paula's Choice Korea continues to serve customers to provide radically honest, straightforward facts and formulas that help consumers with their everyday skin concerns.

Why we need your help

We want to better understand our customers of our DTC (Direct to Customer) website. How can we segment them to better understand their behavior? Which product do they buy for 1st, 2nd, 3rd time by each segment? What motivates them to buy 2nd, 3rd time... at our site? How do we encourage our customers to keep coming back to our site and become loyal customers? How do we better serve our customers in product recommendations?

Project Option #1: Customer Segmentation

- Goal: To understand our customer (purchase) behavior and find the right communication tactics for each group
- Questions to be answered (but not limited to):
 - What are the key indicators in segmenting our customers for effective retention program build-up (e.g., skin type or product? loyalty program tier? age? order value? AOV? result of routine finder*?) ***Routine Finder** is a simple test that helps identify a customized skincare routine
 - What is the best way to segment our customers to better understand them? What would be the ideal matrix among key indicators? What would be the ideal life cycle for segmentation renewal?
 - What is unique customer behavior per each segmentation?
 - If order/customer data we have acquired is not enough for analyzing in full scope, what would be the ideal data structure to archive for future analysis?
 - Will additional customer surveys help the analysis? If so, what would we need to ask to gather the correct data?
 - What will be the most effective cross-selling and repeat purchase tactics? Based on...
 - How does the entry product differ by each segment?
 - What about the repurchased SKU/product line? What is the cycle of a repeat?
 - How long does it take for a customer to buy 1st time > 2nd time > 3rd time by each segment? (what is the average retention duration & frequency)
 - What is the retention rate of a customer's 1st time > 2nd time > 3rd time purchase?
 - Is there any pattern of purchasing a specific mix of product or product lines together? If yes, what products or product lines are frequently purchased together along the customer life cycle?
- Possible Segmentation dimensions (in order of importance):
 1. First purchased product (or their brand line, type, ingredient)
 2. First order value
 3. Loyalty program tiers
 4. Basic demographics (Gender, age, etc.)
 5. Skin type (The list of customers and their skin type data will be provided)

Project Option #2: Cohort Analysis

- Goal: Get insight on our customers based on their entry (1st purchase) year / product at our site
- Questions to be answered (but not limited to):
 - Entry year
 - How retention rate differs by each cohort? Which cohort re-purchases most and which cohort purchases the least? Why? How can we improve the retention rate of the cohort that shows the lowest level?
 - Which cohort generates the most revenue and the least? Why?
 - Which cohort has the highest potential to become our loyal customers? Why and how?

- Entry product (line)
 - For 1st time purchasers, what are the products most commonly purchased?
 - What are the key reasons / factors that drive to the 2nd purchase?
 - On top of the above questions, each product line has skin type attribution. Is there a distinct purchase behavior between the skin type cohort?
 - How strong is the seasonality pattern for the entry product? Does it affect each cohort's retention behavior? (e.g., combination skin type to use the dry-skin product during winter)

Communication Plan

- Regular check-in calls will be set up by Microsoft Teams or Zoom
- Calls will be set up after 3 pm (considering the time difference from Korea)
- The main point of contact:
 - Korea Office: Seungjun Lee (Data Analyst), Kate Hong (Finance Director)
 - Seattle Office: Meeran Kim (Asia Business Manager)
- A final presentation will involve not only the main point of contacts but also the leadership – VP of Asia Business, General Manager of Korea office

We expect the outcome of this project to include both the analytics and the strategic recommendations.

HARMONIZE

Artificial Intelligence

HarmonizeAi (<https://www.harmonize.ai>)

You will work with the product team and AI engineers that built HarmonizeAi on a special project with leaders at the Federal Government's Office of Innovation (performance.gov). You will help fine tune our AI engine as we ingest large volumes of text corpora, define key concepts with stakeholders at FEMA and the COVID Task Force, analyze the data ingested, draft and present reports that elucidate the actionable "Voice of the Citizen" insights.

Students will come away from the project being able to conduct sophisticated data analysis of natural language and learn to present insights to decision makers. There are opportunities for students to get involved with follow on work as part of Harmonize's professional services organization.

Their founders are Seattle-based and great supports of UW!

FRIENDLYFACE.COM

Analytics at Work in Mass Customization

Friendly Atelier (<https://www.friendlyface.com>)

Mass customization is the holy grail in the world of fashion and clothing. As purchasing considerations are starting to migrate online in the new world of accelerated digital transformation, customers are able to select more choices than ever. Combining Just in Time manufacturing and personalization with a Direct-to-Consumer model means not just 1-100 SKUs, but nearly infinite. This project involves you coming up with an operations model for Friendly Atelier, a newly launched personalized face wear brand. You will help define (or refine) our supply chain, ordering process, help understand how to optimize cost per unit, and negotiate vendor contracts. Highlight inefficiencies, find automation tools, and build the playbook as we scale operations globally.

This project will focus on the strategic use of analytics to make this project viable and the type of data and analytics needed for success.

Their founders are Seattle-based and great supports of UW!

LEGUP.CARE

Developing High Quality Childcare Options

LegUp is an early stage startup focused on helping working parents find and enroll in quality care for their children. Our initial focus is on early child care centers, and specifically a set of SaaS tools that helps providers manage their waitlist and enrollment processes. We are looking for a team to help us analyze the data that we have and relevant third-party sources to help answer questions related to supply and demand. How long are families waiting to get into a center and what is the probability a family will get care when they sign up? How does supply (center locations) map to demand (family addresses), and are there opportunities to build new centers to meet demand?

Students will have the opportunity to work directly with the CTO to help define the project and perform relevant analysis.

Note on Data and Analysis: The team will need to process LegUp performance data and look to best practices to develop a compelling marketing channel strategy. This is also a great opportunity to learn about starting a new firm from local entrepreneurs.

LegUp and their founders are Seattle-based and great supports of UW!

ELEMENTBARS.COM

Analyzing Product Costs in Manufacturing

About

In 2008, Element Bars was founded with the goal of providing custom nutrition bars directly to online customers. After developing expertise in small run energy and protein bar manufacturing, we opened our private label capacity to brands and entrepreneurs. We have grown as a food bar manufacturer alongside our wholesale co-packing partners and we are committed to creating a product that supports your vision for a bar brand.

Element Bars is devoted to creating a bar that meets not only your taste and texture preferences, but also your desired nutritional profile. We can create your whole food bar in accordance with food certifications and dietary requirements including Organic, Non GMO, and Gluten Free. We are GMP certified with HACCP Protocol. We retain our entrepreneurial roots with production trials starting at 1,000 bars, and have the capacity to produce over 1,000,000 bars per month for customers. We have partners that have launched with us at 1,000 bars and are now distributed in retailers throughout the United States and abroad.

Project

The team will develop an analytical model of bars offered. The model will need to consider COGS, operating expenses and other appropriate costs. More generally, the model should be flexible and allow for the cost estimate of a theoretical bar, before it has been created.

Jonathan Miller, the Owner and Founder of ElementsBars, is an ACL alumnus and Shark Tank star. Look him up!

EQUITY RESIDENTIAL REIT

Project #1 Selecting Property Amenities for the Future

Equity Residential (NYSE: EQR) is an S&P 500 company focused on the acquisition, development and management of rental apartment properties located in urban and high-density suburban markets where today's renters want to live, work and play. Equity Residential owns or has investments in 308 properties consisting of 80,299 apartment units, primarily located in Boston, New York, Washington, D.C., Seattle, San Francisco, Southern California and Denver.

Equity Residential is actively pursuing new development opportunities in these seven markets. The importance of creating great amenity spaces within our apartment communities can not be understated. We spend a tremendous amount of time and energy designing these spaces. The lounge, rooftop and game room -- these are the areas where memories are made. An inviting and comfortable amenity space not only extends our residents personal living space, but it also allows for a sense of "community" within the property.

However, we can't just build more and more amenity space, we need to find the right balance. Increasing land and construction costs combined with the difficult regulatory environment are making development increasingly more difficult to pencil. The amenity spaces are often the most expensive (in price per square foot) of all the space we build. In addition, often the more amenity space we build results in fewer apartment homes.

What amenities do our future residents want to see in their communities?

How can we best judge the success or failure of an amenity space?

How can we maximize the amenity space we build?

The project sponsor advises the UW Foster Real Estate program and are excited to partner in the ACL!

TOFALIPAY.COM AND ONELEDGER.IO

Peer-Peer Investment

Analyzing token based Peer-2-Peer Investment

Tofalipay Limited (Tofalipay) and OneLedger, plan to develop financial digital products. Tofalipay is a start-up digital platform for trading digital investment products in a simpler way. OneLedger, is a Blockchain as a Service (BaaS) solutions company, with offices in Toronto, Ontario and Barbados.

Through this business collaboration, OneLedger will explore new markets with Tofalipay that allows for global asset tokenization. This is the first step OneLedger will pursue as it starts spreading its wings towards building a Decentralized Financial model. OneLedger will serve as the technology partner as this Asset Management solution progresses through regulatory checkpoints and into production. Tofalipay is a first for the global macro strategy solution to the frontier and growth markets (example of Kenya through the M-PESA system)

Peer-2-Peer (P2P) lending is the second of a series of products under development. The first product is a trading platform currently in prototype. It is an exciting idea with potential, however there is a need to have data supported analysis to allow for market entry and sustainable business growth

Potential Question- Part 1 Primary Market

Primary financial markets are important and serve new ventures by offering that finance to start off. The best example of a primary market is initial public offering. They are mainly short-term in nature and have risk trade off suitable for certain investors. Their main challenge is illiquidity (not enough buyer and sellers). This is severe in P2P lending. Against this backdrop here some questions

1. What is the market size for P2P lending for real estate ?
2. Who are the players in this space ?
3. What is the correct loan size and repayment cycle ?

4. What is the optimal way of using tokenization as collateral ?
5. What is the proposed market activation strategy ?

Potential Question- Part 2 Secondary Market

Secondary markets are important in the sense that they provide liquidity for the buyers and sellers in the primary market. However, their biggest issue is market activation. Think of market activation as the ignition key that gets the battery of the car to start the car. Without this activation, even the most fabulous hemi-engine will not throttle. Against this backdrop, here are few questions

1. What is the market activation strategy for the P2P Lending?

About OneLedger

OneLedger is a Blockchain as a Service (BaaS) solutions company that uses its own blockchain technology to support its customer's business needs. OneLedger's mission is to simplify businesses' adoption of blockchain technology and its integration into their specific business applications and products. The company focuses on blockchain technology in the Healthcare, Asset Management and Supply Chain sector.

To learn more, visit <https://www.oneledger.io/>

About Tofalipay

Tofalipay is a start-up company working on their beta version software. The aim of this software is to provide a platform for investors to achieve their lifetime financial goals using new technologies. Registered early this year, it builds on years of research on global payments platforms that use emerging ways of simplifying payments.

To learn more, visit <https://tofalipay.com/>

This project is sponsored by Dr. Mike Chitavi, an ACL Alumnus!

THE Q5

WWW.THEQ5.COM

NFL Game Predictions -

Dr. Andy Guyader
www.theq5.com

The sports gambling market is expanding due to the recent United States Supreme Court overturning of the Professional and Amateur Sports Protection Act. This creates more opportunities to attack market imbalances that may exist. This project aims to build upon the existing model versions run during the 2017, 2018 and 2019 NFL seasons. Historical data exists all the way back to 2007 for full season analysis. Extensive training and real-time testing has been established to validate the model performance. This project will look at using the 2020 season data as a training set for further model refinements. Currently the data set includes over 120,000 lines of drive data in chronological order with starting field position, plays, yards covered, drive result and unique IDs for game and drive. Game score results are also included.

A successful project could extend and refine the existing point spread models or create an ensemble approach using several seasons to train and test. It also may add new data or analysis not currently being used in the modeling process. A strong possibility also exists to test the predictive signal in an exploration of parlays and teasers. A direction of the project could also look at tuning the model to maximize win/loss predictions - a moneyline approach to the model ROI. The extension from Excel into languages such as R or Python is very likely. The inclusion of an expected points model for drive data is also possible to grow the model accuracy with a separate metric.

The 2020 NFL season might not finish its execution but this model works on a single season at a time. Currently there is no carry-over analysis from year-to-year and currently each year requires a 4 weeks to establish team analysis. This project may also include the participation of other consultants including a quant at a hedge fund who can assist if coding becomes an avenue of activity for the team.

MKTG 579: SPRING 2021 ANALYTICS CONSULTING LAB
RUSSELL WALKER, PH.D.
FOSTER SCHOOL OF BUSINESS

Season	Bets	Win %	Final Pot (Starting Pot = \$100)	Total Return
2013	108	66%	\$196	95%
2014	116	62%	\$147	48%
2015	93	60%	\$122	22%
2016	95	53%	\$102	2%
2017	69	58%	\$134	33%
Average	96	60%	\$140	40%

Year	W/L outcomes				Betting Units			Mutual Fund \$100	% return	Avg last 3 yrs	Avg last 5 yrs	High Pt - Year	Low Pt - Year	Actual \$ Used	
	Bets	Over 50%	wins	losses	Bet %	IN	OUT								Diff
2007	64	4	34	30	53.1%	131	161	30	\$ 156.11	56%		\$ 156.11	\$ 92.32	-\$48.20	
2008	82	6	44	38	53.7%	160	180	20	\$ 129.77	30%		\$ 141.17	\$ 94.24	-\$37.80	
2009	67	11	39	28	58.2%	141	175	34	\$ 167.72	68%	\$ 151.20	\$ 167.72	\$ 99.04	-\$35.28	
2010	71	7	39	32	54.9%	151	170	19	\$ 124.95	25%	\$ 140.81	\$ 138.63	\$ 100.00	-\$42.08	
2011	68	4	36	32	52.9%	157	174	17	\$ 124.47	24%	\$ 139.05	\$ 140.60	\$ 160.19	\$ 100.00	-\$29.08
2012	64	-2	31	33	48.4%	133	134	-9	\$ 75.17	-25%	\$ 108.20	\$ 124.42	\$ 100.00	\$ 73.12	-\$53.20
2013	72	0	36	36	50.0%	154	157	3	\$ 91.34	-9%	\$ 96.99	\$ 116.73	\$ 100.00	\$ 57.03	-\$62.36
2014	78	14	46	32	59.0%	177	197	20	\$ 129.68	30%	\$ 98.73	\$ 109.12	\$ 130.66	\$ 96.95	-\$36.01
2015	54	10	32	22	59.3%	116	134	18	\$ 136.52	37%	\$ 119.18	\$ 111.44	\$ 136.52	\$ 93.72	-\$37.67
2016	52	-2	25	27	48.1%	116	113	-3	\$ 90.92	-9%	\$ 119.04	\$ 104.73	\$ 106.51	\$ 78.29	-\$47.54
2017	69	9	39	30	56.5%	144	171	28	\$ 150.06	50%	\$ 125.83	\$ 119.70	\$ 178.93	\$ 100.00	-\$44.00
sum	741	61	401	340		1580	1757	177	\$ 1,376.72						
averages	67.4	5.5	36.5	30.9	54.1%	143.6	159.7	16.1	\$ 125.16	25%					
Standard Dev					4.0%			13.66	\$ 28.94						
				betting units win %:		55.6%		T-stat:		2.88					

The effort will focus on improving ROI and investment decisions in predicting football outcomes, from the perspective of an investor.

Dr. Guyader and the Q5 are ACL client alumni clients from my Kellogg programs and, now, the Foster ACL!