

Questions & Answers

The Benefits of an Affiliation between Florida Poly and International Flavors & Fragrances Inc.

Question: What does citrus research have to do with Florida Poly?

Answer: Although IFF is a \$5 billion company built around creating, marketing, and selling flavors and fragrances closely associated with citrus, its work extends far beyond that. Much of their work is not what is traditionally thought of as citrus research exclusively. Their needs align closely with our engineering and applied sciences expertise to solve industry problems they face. IFF came to us with a list of problems they want help solving.

In addition, the company has identified gaps in the essential skills necessary for engineering programs supporting the citrus industry. The current citrus related programs at University of Florida and even Citrus Research and Education Center, with whom they partner, only cover the primary industry around citrus, focusing on fruit cultivation, the fresh fruit industry and fruit juice processing. It does not cover any aspects of the engineering tasks necessary in the secondary industry, linked to further processing and use of the by-products in the food or other industries.

Question: How will the proposed Project align with Florida Poly's mission?

Answer: IFF wants to transform its operations through engineering, computer science, and data science. The company seeks to improve research into fragrances and flavors using advanced manufacturing processes, data analysis, correlation, machine learning and computer modeling. Florida Polytechnic University has the faculty and students with the expertise to address these areas. The company also wants to apply cutting edge processing methods, mechanical engineering, and artificial intelligence to facilitate how their scientists test and design products. In addition, IFF plans to delve heavily into full immersion virtual reality for training purposes, product delivery and product testing in different environments. They expect that such testing environments will be more cost effective and should lead to shorter development times. Together they want to use these technologies to gauge customer reaction in quantitative ways that will provide more reliable research outcomes.

Question: What type of work does Florida Poly see faculty doing in the proposed Project and in collaboration with IFF? Also, will FL Poly be asking for additional state operating resources for faculty associated with this P3?

Answer: The University does not expect to require additional state funding as a result of its partnership with International Flavors and Fragrances. Any additional resources needed to support the partnership will be provided by IFF based on the value of collaborations. Some specific areas of interest stated by IFF are:

- 1) Use of Metabolomics, discriminating large sets of analytical data from all possible source, and find correlations via machine learning.
- 2) Statistical design of experiments, improvement on existing and development of new processes, computational modelling.
- 3) Correlation data analysis, stability predictions
- 4) Automation of processes

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- 5) Processing method comparisons
- 6) Development of an artificial intelligence-powered tool to help perfumers and flavorists through machine learning, a system that can suggest combinations of ingredients.
- 7) System/Content development for multisensory 360-degree projection full immersion experience, a system IFF want to bring on site for training and sensory insight studies
- 8) System/content development for interactive touch screen walls or mini canvases.
- 9) Use of VR in training, moving training documentation from 2D to 3D.
- 10) Augmented reality development for above systems, for learning, customer experience or sensory insight studies. Include individual interactivity.
- 11) Capturing and tracking cross-disciplinary biometric data, during sensory tests through human computer interaction; examples: body-tracking wristband or other wearables, facial trackers, eye-tracking etc.
- 12) Faculty will research related companies' current needs and provide expertise and direction on technologies and data analysis records.
- 13) Faculty gets direct connection to an industry partner with needs that match our faculty expertise. IFF researchers may provide support via guest colleges, speaker sessions, roundtables, juries and/or conferences. Provide case studies for our programs.
- 14) Collaboration with IFF anticipates that Florida Poly faculty will propose industry relevant research.
- 15) IFF has also stated that it plans to provide an incubator-accelerator function to help move the outcomes of faculty research to market.

Question: Does the University expect request additional state operating resources for faculty associated with this P3?

Answer: The University does **not** expect to require additional state funding as a result of the proposed P3 Project or its partnership with International Flavors and Fragrances. Any additional resources needed to support the partnership will be provided by IFF based on the value of collaborations.

Question: How will students be incorporated into the research?

Answer: Most important to the University are the outcomes for students that enhance their education and make them more attractive to the companies seeking the talents they acquire in the classroom, lab, and through industry engagement. Critical in this endeavor will be IFF's sponsorship of senior capstone projects, internships, co-ops, and hiring students for jobs. Undergraduate and graduate students will also have opportunities to engage in research with university faculty and IFF researchers from laboratory sciences to technology development. By creating this partnership Florida Poly will become a premier recruitment partner for IFF bringing the following benefits:

1. IFF will make sure the University hears about any job opportunities in a timely manner, for the citrus center and beyond.
2. Florida Poly candidates will be considered as preferred candidates during recruiting selections.
3. When asked, IFF will make sure it reaches out to alumni that engaged with IFF during their study, informing them about any open positions. IFF will also provide references for these students seeking employment with other companies.

4. IFF has stated examples of opportunities to be provided by IFF:
 - a. Mentorship and reversed mentorship opportunities
 - b. IFF researchers will serve as subject matter experts
 - c. Student exposure to industry
 - d. Student exposure to IFF senior leadership
 - e. IFF sponsorship of relevant student organization groups
 - f. IFF sponsorship of university sports teams
5. Students will have opportunities to participate with IFF in:
 - a. Real life projects
 - b. Consumer panels and questionnaires
 - c. Talks with IFF employees
6. IFF will participate in University organized career fairs.
7. Sponsor and participate in lunch and learns.
8. Organize speaker corners.
9. Host ideation sessions, etc.