



Proposal for Senior Honors Thesis

HONS 497 Senior Honors Thesis

Credits 2 (2 minimum required)

Directions: Please return signed proposal to the Honors Office **at least one week prior to your scheduled meeting with the Honors Council**. This proposal must be accepted by Honors Council the semester before presentation.

Student's Name: Noah Opsahl

Primary Advisor: Garth Woodruff

Secondary Advisor:

Thesis Title: A Multiple Case Study: Aesthetic Modality of Integrated Edible Residential Landscape Designs in Dayton Ohio.

Local Phone: 937-838-9920 Email: opsahl@andrews.edu

Targeted Semester for Poster/Final Thesis: Spring 2023

Expected Semester of Graduation: Spring 2023

i. Provide goals and brief description of your project or research.

This thesis project assesses a site in Dayton, Ohio, analyzes the space, and designs it at varying intensities of edible plants. The idea behind this project is that homeowners already spend thousands of dollars renovating and improving their homes with landscape designs. Edible plants can be similarly attractive to ornamental plants. Thus, there is no reason that edible plants cannot take the place of ornamentals in the home landscape. With this in mind, I aim to provide an example of how an edible landscape might look in comparison to an ornamental counterpart. Additionally, I will perform a multiple case study to determine the benefits of having an edible landscape with a cost benefit ratio, using quantitative analysis methodology.

To accomplish these tasks, I have found a live client who is interested in creating an edible landscape. The site selected has multiple areas of varying microclimates. It ranges from steep

slopes of sunny hillside, to a wooded section, as well as a low wetland space. This allows the research to address the topic through a multi-faceted approach, including not only traditional food plants, but also those that grow in shade or in wetland spaces.

Upon completion of this project, the following objectives will be achieved: an accurate analysis of the landscape, including, but not limited to, a topographic map, a water runoff analysis, and a soils data map. Additionally, there will be 3 sets of designs with varying percentages of edible plants represented (0%, 50%, 100%), which will include typical design documentation (planting plan, hardscaping plan, grading plan, water reclamation plan, lighting plan, and construction details as needed). Additionally, section elevations and 3d renderings of the completed designs will be produced. There will also be a comparative plant study that contains traditional ornamental plants and their edible counterparts. Following this, there will be a cost/benefit analysis of using edible plantings at different intensities to demonstrate the quantitative benefits of such a landscape.

ii. Outline your methodology. Please be specific. How does this achieve your goals and how reliable is it? (Add case study)

This is creative scholarship; the traditional design methodology will be applied. First, I found a live client and a site to work on. Next, I will produce an analysis of the site. Then, there will be multiple rounds of design until a satisfactory concept is produced. Following this, I will create an index of ornamental plants and their edible counterparts. Using these plants, I will produce 2 designs, one with ornamental plants and one with edible plants. I will then do a quantitative analysis of the plant cost and production to determine the cost benefit ratio. With these numbers, I will produce a third, hybrid, design. The third design will include 50% ornamental plants and 50% edible plants, to optimize both the aesthetics and food production. These will be compiled into a multiple case study, comparing both aesthetics and the cost benefit ratio.

iii. Explain in what sense your project is original, unique, or beyond normal senior expectations. How does it relate to current knowledge in the discipline?

My project exceeds the typical requirements of students in the Landscape and Environmental Design program for multiple reasons. First, the scope of the project is significantly larger than the projects my peers are undertaking. I am not only designing a large site, but also a large site with varying microclimates. Additionally, I am doing 3 renditions of design rather than just one final deliverable. Finally, I am including a multiple case study of both aesthetics and cost benefit ratios, neither of which are typically expected from a design project.

Furthermore, while there are certainly professionals who are experts in the field of edible landscaping, I have not been able to find any comparative studies on the aesthetic modality of edible plants in comparison to their ornamental counterparts.

iv. Include a substantive annotated bibliography of similar or related work.

Lovell, Sarah Taylor. 2010. "Multifunctional Urban Agriculture for Sustainable Land Use Planning in the United States" *Sustainability* 2, no. 8: 2499-2522.

<https://doi.org/10.3390/su2082499>

This article covers the value of urban agriculture from multiple perspectives. This includes a number of services and intrinsic benefits to the spaces created. It covers the economic benefits, the relative cost of locally produced food vs. food that has been shipped in, the reuse and subsequent reduction of waste, as well as ecological benefits, amongst other topics. This research demonstrates the benefits and importance of producing food close to the consumer. It evaluates these benefits from a holistic perspective, and concludes that though there are

practical constraints to urban agriculture, such as land space and funding, it should be pursued as an avenue of community development.

Hemenway, T. (2009). *Gaia's Garden*. Chelsea Green Publishing Company.

https://bafykbzacedbjhrsp5eeotatnn7iij3twq4bx2xuamrc2fv3vt7vxnn3ton2oc.ipfs.infura-ipfs.io/?filename=Toby%20Hemenway%20-%20Gaia%27s%20Garden%2C%20Second%20Edition_%20A%20Guide%20To%20Home-Scale%20Permaculture-Chelsea%20Green%20Publishing%20%282009%29.pdf

Permaculture is the practice of creating gardens that will produce food for many years with minimal maintenance. Beginning with the core principles of permaculture, this book expounds upon the efficacy of nature as a model for creating lasting, beautiful, and productive gardens. It then speaks on the harm that ornamental gardens can have on local ecologies and microclimates. Nature works through biodiversity. Thus, a constant struggle for a curated, monoculture look is antithetical to producing healthy landscapes. While my design for the space I have selected will attempt to match a traditional landscape design, this book will, nevertheless, be the philosophical framework for how the design process is approached.

Azunre, G. A., Amponsah, O., Peparah, C., Takyi, S. A., & Braimah, I. (2019). A review of the role of urban agriculture in the sustainable city discourse. *Cities*, *93*, 104–119.

<https://doi.org/10.1016/j.cities.2019.04.006>

This article is a review of multiple literature sources on the role of urban agriculture in sustainable cities. They compiled information such as urban agricultural practices, how sustainable cities are measured, various benefits of urban agriculture, as well as the negative effects of urban agriculture on the city. It concludes that urban agriculture is good for society

and the economy, but might be somewhat taxing on the environment. This information will inform me of the techniques and efficacy of urban agriculture.

Opitz, I., Berges, R., Piorr, A., & Krikser, T. (2015). Contributing to food security in urban areas: differences between urban agriculture and peri-urban agriculture in the Global North. *Agriculture and Human Values*, 33(2), 341–358. <https://doi.org/10.1007/s10460-015-9610-2>

This article discusses the differences between urban agriculture and peri urban agriculture. It concludes that urban agriculture and peri-urban agriculture serve two distinct purposes. The former is typically individually led for personal or communal consumption on very small plots of land within the inner city. The latter is typically larger scale and uses the wasted fringe space near the edges of cities. It is used more for commercial use. These distinctions allow me to see what urban agriculture is not and thus directs me closer to what it ought to be.

Ackerman, K., Conrad, M., Culligan, P., Plunz, R., Sutto, M. P., & Whittinghill, L. (2014). Sustainable Food Systems for Future Cities: The Potential of Urban Agriculture. *The Economic and Social Review*, 45(2), 189–206. <https://www.esr.ie/article/view/136>

The global population is increasing exponentially. Due to this, it is essential to look at how urbanization can be done effectively while also producing the food needed by an ever-growing population. Urban agriculture has traditionally helped socially, economically, and environmentally. Thus a study on the metrics of these effects is necessary. This journal will allow me to see the objective benefits and detrimental effects from their polled area, which will inform possible future problems and will provide the opportunity for theoretical and practical solutions to those problems.

Camps-Calvet, M., Langemeyer, J., Calvet-Mir, L., & Gómez-Baggethun, E. (2016). Ecosystem services provided by urban gardens in Barcelona, Spain: Insights for policy and planning. *Environmental Science & Policy*, 62, 14–23. <https://doi.org/10.1016/j.envsci.2016.01.007>

This study uses a survey to garner insights from the local populace on the effects of urban gardens in Barcelona, Spain. This journal first identifies the ecosystem services provided by urban agriculture. It then evaluates the socioeconomic status of urban agriculture's beneficiaries. It then states why their observations matter on a local and global scale. Their survey found how urban gardens can affect social cohesion, social responsibility, and how it promoted recreation and healthy lifestyles. This study will be useful for me to address why this topic matters. If urban gardens can not only make people happier and healthier, but to actually allow people to be better members of society, then I believe it is a topic well worth exploring.

Although this article has to do with Barcelona, Spain, I feel that any insight is worth considering. The results of their studies will inform what the US could do better and/or what the US is already doing better to facilitate efficacious urban agriculture and edible landscaping.

Camps-Calvet, M., Langemeyer, J., Calvet-Mir, L., Gómez-Baggethun, E., & March, H. (2015). SOWING RESILIENCE AND CONTESTATION IN TIMES OF CRISES: The case of urban gardening movements in Barcelona. *The Open Journal of Sociopolitical Studies*, 8, 418–442. https://brage.nina.no/nina-xmlui/bitstream/handle/11250/300274/Gomez%2bBaggethun%2bSowing%2bSociopolitical_Studies%2b8%2b2%2b2015.pdf?sequence=3&isAllowed=y

This study describes how urban gardens can nurture social and ecological diversity, generate and transmit ecological knowledge, and create opportunities for action and self actualization. In addition to this, they also study how urban gardens can be a form of resistance to privatization

of public spaces, as well as how to integrate new forms of urban lifestyles. They believe that urban gardens create resilience and community. I believe that the future is grim and that we will need social cohesion to get through the tough parts. Thus, if urban gardening and edible landscaping will provide social cohesion and will be a buffer against fallout, then this study will help to provide information as to why this topic is important.

Kabisch, N. (2015). Ecosystem service implementation and governance challenges in urban green space planning—The case of Berlin, Germany. *Land Use Policy*, 42, 557–567.

<https://doi.org/10.1016/j.landusepol.2014.09.005>

This article studies similar topics to the prior article, but acknowledges more social constraints such as budget and space. This will be a very useful article as it will allow me to find solutions for less socioeconomically privileged groups in order for them to receive equitable treatment as their privileged neighbors.

Some precedent work that provides an idea of what I am aiming for:

<https://www.rosalindcreasy.com/home-1>

<https://www.almanac.com/edible-landscaping-selecting-right-plants>

<https://civileats.com/2019/01/14/edible-landscapes-are-un-lawning-america/>

<https://www.startribune.com/california-artist-looking-for-twin-cities-suburban-lawn-to-transform/197512571/>

<https://garden.org/special/pdf/2014-NGA-Garden-to-Table.pdf>

<https://txediblelandscapes.com/>

v. Provide a statement of progress to date and list the research methods coursework completed.

Junior year, Spring semester (2022)

- Decide which topic to pursue

- Conference with advisor about the topic
- Collect resources related to the topic
- Make annotations
- Begin outline of draft/begin draft

Summer prior to senior year (2022)

- Register for Honors Thesis defense
- Continue drafting research/conduct any additional research needed.

Senior year, Fall semester (2022)

- Meet with advisor about research proposal
- Sign up for thesis defense

I have also completed Research Methods (AGRI 335), 4 credits of capstone (AGRI 497), with 1 credit in progress, and 2 credits of Senior Honors Research (HONS 497) in progress.

Department Chair Approval

- **This student’s performance in his/her major field is acceptable.**
- **He/she has completed the requisite research methods coursework for the research to be pursued.**
- **I understand that he/she plans to graduate with Honors.**

Katherine Koudela

Department Chair (signature required)

Research Advisor Approval

I have read and support this proposal:

(signature required)


 Primary Advisor

I have read and support this proposal:

Advisor (signature required)

 Secondary

If human subjects or if live vertebrate animals are involved, evidence of approval from the Institutional Review Board or an Animal Use Committee is needed through the campus scholarly research offices (Ext. 6361).