

Spring 2025

4.s69 | Special Subject: Advanced Study in the History of Urban Form

Alternative Futures from the Sahara: Design Strategies for Reclaiming Commons

Level: G

Units: 3-0-9

Instructor: Safouan Azouzi (sazouzi@mit.edu)

Schedule: M 9.30 - 12.30, room 26-142

Enrollment: Limited to 12

Final Exam: Final review/exhibition on week 13 (Monday, May 5)

Course Description

This course examines the challenges faced by the oasis agroecosystems, focusing on Tunisia's Nefzawa region as a case study and delves into the historical, environmental, and socio-economic factors at play in the area. By reviewing the literature, analyzing climate projections, and utilizing Earth observation data, students will learn about the unsustainable use of natural resources, worsened by climate change and land/water dispossession processes.

The course will highlight pathways to resilience and alternative economic models centered on “commons” and “oasis connectivity.” We will identify ways to integrate/combine traditional low-tech commoning practices with modern technology to enhance community resilience and promote biodiversity while seeking innovative approaches that go beyond simply preserving environmental and agricultural heritage.

Students will participate in scenario-building exercises for the Nefzawa oases, drawing insights applicable to broader urban areas across the Arab world, many of which are projected to become uninhabitable by the end of the century. The course will emphasize social and climate justice as essential components of sustainable futures, positioning design as a societal transformation and collective action tool.

In this interdisciplinary setting, students will critically assess the balance between innovation and remembrance in design. They will explore how these unique eco-social landscapes can inform broader decolonial frameworks in architecture, urban planning, and design, addressing urgent challenges like climate change, resource scarcity, and socio-economic inequality. In this studio, we will delve into the dual narratives of the heavenly aspects and imaginaries of oases while confronting the harsh realities of plunder, drought, and ecological destruction.

**** Students should have basic proficiency in mapping and GIS tools such as ArcGIS and QGIS.**

Learning Objectives

The course meets Mondays (9:30 am – 12:30 pm) for lectures, discussions, and thematic explorations. Divided into three modules, production occurs outside class in Modules 1 and 2, while Module 3 includes tutorials on future-making tools and supervised studio work. Expect 9 hours of weekly work outside class, totaling 12 units of credit.

The course topics will be explored through three interconnected modules:

- Module 1: Contextualization (Foundations Phase)
- Module 2: Site Analysis and Mapping (Critique Phase)
- Module 3: Futuring (Fantasy Phase)

All three modules will be graded. Your individual or group work will be developed through homework and discussions in relation to course readings and according to your personal interests and disciplinary backgrounds.

By the end of this course, students will be able to:

- Understand the conceptual foundations of commons theory and explore its intersection with design. Discuss how decolonial frameworks in socially and politically engaged design can support economic transitions that reflect the Global South's perspective, beyond humanitarian approaches.
- Develop an understanding of oases as interconnected social, cultural, and ecological systems. Examine the processes of land/water dispossession and extractivism, in the oases alongside the shift from water commoning to water contest.
- Collaborate on an interdisciplinary project that combines research and speculative design to propose sustainable scenarios that address the contemporary challenges of communities living in the oasis of Nefzawa (and beyond).

Course Schedule & Assignments

Module 1: Contextualization (Foundations Phase)

Feb. 3 — 24

Module 1 due: Feb. 24

Module 2: Site Analysis and Mapping (Critique Phase)

Mar 3 — Mar. 17

Module 2 due: Mar. 17

Module 3: Futuring (Fantasy Phase)

Mar. 31 — May 13

Exhibition due: May 5

Final portfolio submission: May 12

Assignment 1 (Due Week 4 - Monday, Feb 24):

Objective:

Individual work. Engage with an oasis through Earth observation data and mapping exercises to deconstruct their spatial, ecological, and social dynamics.

Tasks:

1. Site Observation & Documentation:

- Choose an oasis (virtual exploration using Google Earth, maps, or photographs).
- Document: water sources, agricultural layout, built structures, circulation paths, and human activity.
- Take notes, sketches, or photos to capture spatial relationships.

2. Mapping Exercise:

Create a layered map (hand-drawn or digital) that visualizes:

- Water and irrigation systems
- Vegetation layers (date palms, undergrowth, etc.)
- Built environment and socio-economic activities (markets, gathering spaces, etc.)

*** Annotate the map with observations on how these elements interact.**

Assignment 2 (Due Week 6 - Monday, March 10):

Objective:

Individual work. **Roughly repeat** what was done in Assignment 1, then analyze the different land typologies and property regimes in the chosen oasis, following the example of Jemna to identify stakeholders and explore synergies for commons-based governance at the town level.

Tasks:

1. Mapping Land Typologies & Uses

- Identify different land categories in Jemna (privately owned, collectively managed, abandoned, etc.).
- Conduct a spatial mapping exercise to locate and visualize these typologies.
- Use hand-drawn or digital maps to highlight boundaries, overlaps, and key features.

2. Stakeholder & Persona Analysis

- Identify key actors (small farmers, landowners, cooperatives, state representatives, investors, NGOs, etc.).
- Develop 3–5 personas representing different stakeholders, detailing their roles, interests, struggles, and relationships with land and water resources.

Deliverables:

- **Land Typology Map** – Visualizing land categories in Jemna (annotated hand-drawn or digital).
- **Stakeholder Personas** – Profiles of key actors and their relationships with land and resources.

Assignment 3 (Final Exhibition – Due Week 12, Monday, May 5):

Objective:

Group work. Using scenario planning (dystopia) and backcasting (utopia), students will create a multi-format exhibition depicting two contrasting futures for Nefzawa in 2050—one based on the likely trajectory of current trends (dystopian), the other envisioning a future shaped by commons-based governance and connectivity (utopian). Create connections between each oasis that each student chose and find synergies

Tasks:

- 1. Forecasting: The Dystopian Future (2050)**
 - Develop a realistic yet alarming projection of Nefzawa based on current environmental, social, and political trends (e.g., desertification, land privatization, water scarcity, economic collapse, climate migration).
 - Use speculative storytelling, mappings, and 3D modelings to illustrate this future.
- 2. Backcasting: The Utopian Future (2050)**
 - Imagine a transformative vision where Nefzawa thrives through commoning, and connectivity.
 - Work backward from 2050 to 2025, identifying the key steps that could lead to this scenario.
 - Use maps, visual storytelling, interactive elements, and 3D modelings and prototypes to illustrate this future.
- 3. Exhibition Production**
 - Translate research into a cohesive engaging exhibition format (can include posters, simulations, interactive storytelling, etc.). Consider creating a dual-space setup: Dystopia – the bleak, fragmented future of Nefzawa Vs Utopia – a vision of a connected, thriving commons-based future.

Deliverables:

- **Dystopian Scenario** – A narrative and visual representation (e.g., digital or hand-drawn maps, speculative fiction, etc.).
- **Utopian Scenario** – A timeline and visual representation outlining the transition to a commons-based future.

Attendance & Participation

Regular and timely attendance is required for all class sessions and reviews. Students are responsible for catching up on any missed content. Assignments are expected to be submitted by the specified deadline. Food and drinks are not permitted in lab facilities. Students must complete the assigned readings and participate in class discussions and activities. Absences require prior approval from the instructor.

Evaluations

- Module 1: 25%
- Module 2: 25%
- Final Project (Exhibition): 50%

Completion of the final project and regular attendance are required for a passing grade. Unexcused absences and repeated tardiness will automatically lower a grade by half of a letter grade.

Studio Culture

The Department of Architecture promotes a learning environment that supports the diverse values of the entire MIT community of students, faculty, administration, staff and guests. Fundamental to the mission of architectural education is the stewardship of this diversity in a positive and respectful learning environment that promotes the highest intellectual integrity and cultural literacy. As architectural design learning is often accomplished through project-based activities during and outside of class times, maintaining this environment at all times is the responsibility of the entire community. Faculty and students should strive to understand and mutually respect the varied commitments of each other and work together to manage expectations of time and effort devoted to assignments, pin-ups, and public reviews.

Academic Integrity Policy

MIT's expectations and policies regarding academic integrity should be read carefully and adhered to diligently: <http://integrity.mit.edu/>

Religious Accommodations

Absences for religious observance or other accommodations are welcome but must be communicated to the instructor in advance.

Accommodations for Students with Disabilities

MIT is committed to the principle of equal access. Students who need disability accommodations are encouraged to speak with Disability and Access Services (DAS), prior to or early in the semester so that accommodation requests can be evaluated and addressed in a timely fashion. If you have a disability and are not planning to use accommodations, it is still recommended that you meet with DAS staff to familiarize yourself with their services and resources. Please visit the DAS website for contact information.

Once you have been approved for accommodations, inform us so we can assist with implementation.

Website: <https://studentlife.mit.edu/das>

Student Support

As a graduate student, a variety of issues may affect your academic career, including faculty/student relationships, funding, and interpersonal concerns. In the Office of Graduate Education (OGE), GradSupport provides consultation, coaching, and advocacy to graduate students on matters related to academic and life challenges. If you are dealing with an issue that is impacting your ability to attend class, complete work, or take an exam, you may contact GradSupport by email at gradsupport@mit.edu or via phone at (617) 253-4860.

Diversity

MIT values an inclusive environment. I hope to foster a sense of community in this classroom and consider this classroom to be a place where you will be treated with respect. I welcome individuals of all backgrounds, beliefs, ethnicities, national origins, gender identities, sexual orientations, religious and political affiliations – and other visible and non-visible differences. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class. If this standard is not being upheld, please feel free to speak with me.

Course Overview

Module I – Contextualization (Foundations Phase)

Week 1 - Monday, Feb 3: Decolonial Design, Commons and Postcapitalism

Fry's concept of defuturing highlights how unsustainable design practices erode future possibilities, while Escobar envisions design as a tool for subaltern communities to reclaim autonomy. Both, along with many others, call for a shift from a Western-centric, capitalist understanding of design. Boehnert posits that design may critically engage with heterodox economics to disrupt neoliberal paradigms. Central to this discourse is the "metabolic rift," a concept illustrating the rupture in the symbiotic relationship between humanity and nature due to capitalist production. In the same vein, the commons are seen as an alternative form of governance, transcending privatization and statization. Here, commons are not only shared resources but also a relational quality; they serve as a principle for social, ecological, and economic change, shaping alternative ways of living beyond capitalism. If design emerged in the consumer economy, does it exist in the commons economy? What role can it play in shifting from an extractivist growth model to a resource-based economy?

Read:

- Boehnert, J. (2018). Anthropocene economics and design: Heterodox economics for design transitions. *She Ji: The Journal of Design, Economics, and Innovation*, 4(4), 355-374.
- Escobar, A. (2018). Autonomous design and the emergent transnational critical design studies field. *Strategic Design Research Journal*, 11(2), 139-146.
- Gibson-Graham, J. K., Cameron, J., & Healy, S. (2016). Commoning as a postcapitalist politics. In *Releasing the commons* (1st ed., p. 21). Routledge.

Optional read:

- Clark, B., Foster, J. B., & Longo, S. B. (2019). Metabolic rifts and the ecological crisis. In *The Oxford Handbook of Karl Marx* (pp. 651-658). Oxford University Press.
- Escobar, A. (2018). *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*. Duke University Press.
- Fry, T. (2020). *Defuturing: A New Design Philosophy*. Bloomsbury Visual Arts.

Week 2 - Monday, Feb 10: Oases as Socio-Ecological Landscapes

Oases, as artificial, anthropized and cultivated spaces in arid zones, adopting for millenia complex social organization of solidarity and commoning around water. However, the effects of climate change, development, and growth have disrupted the social fabric around commons. In this session, we will define oases and, by extension, deserts, drylands, desertification, and arid zones. We will explore what constitutes an oasis, where oases are located, and their socio-ecological features. We will also discuss the total artificiality of oasis landscapes, and examine the Western perception of them as quiet, self-sufficient, idyllic places of relaxation and easy living (and deserts as barren and hostile) and learn how and why this image of oases has been historically constructed to serve political and economic ends.

Read:

- Battesti, V. (2012). The Saharan oasis put to the test of its Landscape: The Jerid. Virginie Lefebvre & Aziza Chaoui. *Desert Tourism: Tracing the Fragile Edges of Development*, Harvard University Press, pp.104-117, 2012, Aga Khan Program of the Graduate School of Design
- Carpentier, I., & Gana, A. (2017). Changing agricultural practices in the oases of southern Tunisia: Conflict and competition for resources in a post-revolutionary and globalisation context. In E. Lavie & A. Marshall (Eds.), *Oases and globalisation* (pp. 153-176). Springer Geography.

Week 3 - Tuesday, Feb 18: The Sahara as an Archipelago of Oases

**** The class will take place on Tuesday, February 18. (Monday, February 17, Holiday—Presidents' Day)**

The Sahara has too rarely been considered a cultural area in its own right. As a result, it has often been reduced to a marginal position (environmental, economic, political, etc.) with the Mediterranean and Sahelian worlds. However, in recent years, the perception of the Great Desert across historical periods has significantly evolved, and it is seen as an original entity at the junction of, rather than at the periphery of, the Maghrebi and Equatorial Africas. Similarly, if we focus solely on the oasis as a place of agricultural production, we run the risk of failing to understand its essence as a system of “overproduction” where trade was and remains essential. The colonial oblivion of this aspect of its economy led to consider the oasis as an isolate, whereas it is a place of human and commercial mixing. In this session, we will examine the Sahara’s invisibility and marginalization, discussing it as an archipelago of societies, a collection of interconnected oases, in the wake of Glissant’s archipelagic thinking. We will explore oasis insularity as a node in a network, examining past and present Sahara mobilities.

Read:

- Capel, C, Voguet, E, & Aillet, C. « The Precolonial Sahara : An archipelago of societies ? », *Revue des mondes musulmans et de la Méditerranée*, 149 | 2021, 31-52.
- Mattingly, D. J., Sterry, M., Al-Haddad, M., & Trouset, P. (2020). Pre-Islamic oasis settlements in the northern Sahara. In M. Sterry & D. J. Mattingly (Eds.), *Oasis origins in the Sahara: A region-by-region survey* (pp. 187-238). Cambridge University Press.

Optional read:

- Al-Koni, I. (2014). *New Waw, Saharan oasis* (A. Bell, Trans.). The American University in Cairo Press.
- Glissant, É. (1997). *Poetics of relation*. University of Michigan Press.
- OECD/SWAC (2014). *An Atlas of the Sahara-Sahel: Geography, Economics and Security*, West African Studies, OECD Publishing.
- Scheele, J. (2012). *Smugglers and saints of the Sahara: Regional connectivity in the twentieth century*. Cambridge University Press.

Week 4 - Monday, Feb 24: Water Dispossession and Extractivism in the Tunisian Oases

Reassessing Marx's theories of primitive accumulation and accumulation by dispossession reveals their ongoing relevance in capitalism's expansion into non-capitalist territories. In North Africa, these processes—rooted in colonialism and reinforced post-independence—manifest through resource extraction, land/water privatization, and environmental degradation, deepening the region's subaltern integration into the global economy. In Tunisia, this is reflected in large-scale phosphate extraction (Gafsa and Gabes oases), water-intensive agro-industry (Nefzawa oases), and tourism (Jerid oases). Tunisia is chosen as a case study from the Maghrebi part of the Sahara, where migration is increasingly linked to food security and climate change challenges. We will explore the processes of dispossession inherent to capitalism and examine the calls for new approaches to developing the agrifood system in the country, focusing on food sovereignty and addressing the impacts of dependent, export-oriented agriculture. Tunisia's rising "environmentalism of the poor," as coined by Martinez-Alier, has led to widespread ecological conflicts. In this session, we will focus on the oases of Gabes, as a key site of social and environmental activism, which faces severe pollution from chemical fertilizer production. Yet, local farmers persist in preserving local seeds and ancestral three-layered cultivation.

Read:

- Bush, R., & Martiniello, G. (2017). Food riots and protest: Agrarian modernizations and structural crises. *World Development*, 91, 193-207.
- Hamouchene, H. (2019). *Extractivism and resistance in North Africa*. Published by Transnational Institute. Amsterdam October 2019.
- Azouzi, S., & Di Lucchio, L. (2023). Design as/for Common(s): Decolonial Participatory Experiences for Post-Capitalist Resilient Future(s). *Diid — Disegno Industriale Industrial Design*, (79), 16

Optional read:

- Ayeb, H. & Bush, R. (2019). *Food insecurity and revolution in the Middle East and North Africa : agrarian questions in Egypt and Tunisia*. London: Anthem Press.
- Martinez-Alier, J. (2002). *The environmentalism of the poor: a study of ecological conflicts and valuation*. Edward Elgar, Cheltenham.

Assignment 1 due:

Module II – Site Analysis & Mapping (Critique Phase)

Week 5 - Monday, Mar 3: Henchir El Maamar (Micro Scale)

In this week, we will study Henchir El Maamar, a site in Jemna, dubbed the "oasis of the revolution." In Jemna, protests centered on land issues, stemming from peasants' dispossession during colonization and government annexation post-independence. Amidst the revolution, the Jemnians took back their ancestral land. Jemna's experience is one of land commoning and a case of contested commons, symbolizing peasant resistance to neoliberal policies and fostering participatory democracy. This social movement prompts reflection on Tunisia's broader challenges, revealing the limits of the revolution in addressing systemic issues like land and water access. The question would be to understand why such a movement around commons was made in Jemna and not in other oases and why it remained more of an experiment than a fully realized project.

Read:

- Ben-Slimane, K., Justo, R., & Khelil, N. (2020). Institutional Entrepreneurship in a Contested Commons: Insights from Struggles Over the Oasis of Jemna in Tunisia. *Journal of Business Ethics*, 166(4), 673–690.

Optional read:

- Kerrou, M. (2021). *Jemna l'oasis de la revolution*. Cérès éditions

Week 6 - Monday, Mar 10: Jemna, Land Status and Water Resources (Mezzo Scale)

This session shifts to the mezzo scale, examining Jemna's municipality to analyze land ownership, property rights, and land use. In 2020, around 85% of the Nefzawa region's total date output and 80.7% of the national production came from unrecognized illicit extensions, constituting Tunisia's largest illicit agricultural use of groundwater. Jemna, part of Nefzawa, follows this pattern. These extensions, not acknowledged by the central authority, have largely evaded public policy scrutiny regarding their developmental trajectory. Paradoxically, the same central authority benefits from exporting produce from these illicit extensions. In this session, we will navigate the complexity of categories, including state-initiated palm groves, private groves, illicit extensions, traditional oases, etc. This will help us in tracing the changing methods of irrigation and water extraction driven by both state policies and local adaptations.

Read:

- Farolfi, S., Lavaine, E., Morardet, S., Lfakir, O., Khamassi, F., & Willinger, M. (2022). Farmers' perceptions of water management in Jemna oasis, Southern Tunisia. *New Medit Special Issue*.
- Mekki, I., Jacob, F., Marlet, S., & Ghazouani, W. (2013). Management of groundwater resources in relation to oasis sustainability: The case of the Nefzawa region in Tunisia. *Journal of Environmental Management*, 2013, 121, pp.142-151.

Week 7 - Monday, Mar 17: Nefzawa as a Single Oasis (Macro Scale)

This week focuses on the macro scale of the Nefzawa region, exploring its history, ecological evolution, and current state. In Nefzawa, the landscape's evolution over decades shows the burgeoning greenery of palm trees encroaching upon the desert backdrop, which might seem triumphant. In 2022, Tunisia exported 124,000 T of dates (10.7% of global exports) from a 368,000 T harvest. Nefzawa, in the Kebili governorate, is the country's primary date-producing region, covering 66% of the total cultivated area (38,000 ha). However, unsustainable agricultural and water management policies threaten oasis ecosystems, with illicit drilling rising from 4,686 in 2016 to 21,279 in 2021 and groundwater levels dropping 3 to 5 m per year. From a landscape perspective, Nefzawa has become a single green expanse of interconnected oases. Does the term "oasis" still accurately describe these landscapes, given the complexities of classification between modern and traditional oases? We will critically examine the "greening the desert" narrative, and the need to move beyond traditional-versus-modern dichotomies that focus solely on environmental and agricultural aspects while overlooking socioeconomic ones.

Read:

- Mekki, I., Ferchichi, I., Taouajouti, N., Faysse, N., & Zairi, A. (2022). Oasis extension trajectories in Kebili territory, southern Tunisia: drivers of development and actors' discourse. *New Medit*, 2022, (05), pp.85-101.
- Khebour Allouche, F., Abidi, I., Delàître, E., Abu-hashim, M. S. D., Ouerchfeni Bousaida, D., Hamad, S., & Riahi, R. (2021). Assessing Tunisian Oasis Dynamics Using Earth Observation and Landscape Metrics: Case of Djerid and Nefzaoua Regions (pp. 285–301).

Assignment 2 due

Spring Break — holiday

Module III – Future (Fantasy Phase)

Week 8 - Monday, Mar 31: Forecasting

Researchers from the Institute of Arid Regions in Kebili, whom I met during ethnographic field research, foresee the collapse of oasis systems in the region by the 2030s due to a monoculture focus and climate change. They emphasized the risk of palm tree fires in 60°C sirocco winds, triggering large blazes in palm groves. Despite oases enduring for millennia, many face abandonment due to factors including desertification, soil erosion, and salinization, diseases affecting vegetation, silting of cultivated land, and water resource challenges, notably declining borehole levels, heightened water salinity, and increased pumping costs. Climate projections for oases indicate an average warming of 1.9°C by 2030, with a precipitation decrease of 9% by 2030. This week introduces the method of forecasting as a tool for envisioning a realistic projection (a rather dystopic future) based on current data. We will use forecasting to explore the most likely future for Nefzawa based on the extrapolation of current trends.

Week 9 - Monday, Apr 7: Forecasting

We will continue our exploration refining the scenario developed in Week 8 and expanding on it.

Week 10 - Monday, Apr 14: Backcasting

In this session, we will introduce backcasting as a method for designing pathways to achieve the envisioned future scenarios. The idea is to turn negative issues into positive ones and imagine new scenarios around community economies and commoning. The concept of “oases connectivity,” which exemplifies cosmopolitan localism, where mutually supportive communities globally exchange knowledge, skills, and culture (Sachs, 1999), will also be used as a lens. Ultimately, design solutions to future challenges in Nefzawa’s oases may be found in their past. Through enhancing oasis connectivity and revitalizing traditional commoning practices, a more sustainable and equitable future for these crucial landscapes could be fostered. The utopian scenarios we develop will be proposed to the community in Jemna for further refinement, discussion, reframing, and possible implementation.

Week 11 - Monday, Apr 21: Patriots' Day — holiday.

No class. Use this time to finalize your forecasting and start the backcasting.

Week 12 - Monday, Apr 28: Backcasting

Final refinements and a deeper dive into backcasting. Students will work on integrating their vision for the future of the oases in Nefzawa into a cohesive design project.

Week 13 - Monday, May 5: Exhibition / Final Review

This class will be dedicated to the exhibition of final projects, allowing students to showcase their work.

Week 14 - Monday, May 12: Final Portfolio Submission

Students are required to maintain a comprehensive record of their projects throughout the semester, presenting the progression, development, and results in a cohesive manner. The final submission should consist of a well-organized folder that shows the evolution of their concepts and the technical work involved, serving as both an archive and a basis for evaluation. (Upload your final portfolio to Canvas by midnight)

Assignment 3 due