ES/EC/IB 347 CIRCULAR ECONOMY:
FROM MAKE-TAKE-WASTE TO A VISIONARY SYSTEM WITHIN PLANETARY BOUNDARIES IN A GLOBAL AND EUROPEAN CONTEXT
IES Abroad Milan

DESCRIPTION:
The world is now facing a severe environmental crisis. Rising consumption needs in advanced countries as well as in emerging and fast-growing economies are harming the whole planet. The "take-make-dispose" model of production and consumption is no longer sustainable. Many natural resources are finite, and an environmentally and economically sustainable way of using them must be found. A global shift towards more sustainable production and consumption paradigms is urgently needed.
This course focuses on the concept of the circular economy (CE) – which is defined as "an industrial economy that is restorative or regenerative by intention and design" (Ellen MacArthur Foundation, 2013, p.14) – and considers it as a possible path towards more sustainable consumption and production patterns. CE distinguishes itself from the traditional linear economy as it aims to narrow, slow, and close the resource loops. Further, it represents a systemic shift that builds long-term resilience, generates business and economic opportunities, and provides environmental and societal benefits. Starting from defining the concept of CE and framing it within the EU Circular Economy Package, the course will then focus on sustainable/circular business models and provide practical examples in specific industrial sectors, such as agriculture, food, textile, and plastics. This course is particularly valuable for students of innovation and environmental studies with an interest in the following subjects: Strategic Management; Innovation Management; Entrepreneurship; EU Policies.

CREDITS: 3

CONTACT HOURS: 45

INSTRUCTOR: Andrea Urbinati, aurbinati@liuc.it; Mario Fontanella Pisa, mfontanellapisa@liuc.it.

LANGUAGE OF INSTRUCTION: English

PREREQUISITES: none

METHOD OF PRESENTATION:
Lectures, class discussion of the required readings, videos, course-related trip, teamwork. Lectures will be based on frontal lessons, stimulating discussions and teamwork to foster debates and encourage critical thinking. Guest speakers are invited to share their business experience. By means of the teamwork on a real business challenge, students have the chance to put their learning into practice. A course-related trip will allow students to engage directly in real-world applications and implications of concepts discussed in class.

REQUIRED WORK AND FORM OF ASSESSMENT:
a) Class engagement – 10%
b) Midterm Exam – 30%
c) Assignment (business challenge) – 20%
d) Final Exam – 50%

a) CLASS ENGAGEMENT
A significant amount of class time will involve discussion of videos, papers, case studies, as well as individual and group exercises that introduce and reinforce key topics. Students' engagement in class is therefore essential and will be assessed. Students are expected to take an active role in class, participating in class discussions and fulfilling the

required work for each session. To successfully meet this requirement, students should be prepared to devote significant time outside of class to reading and critical thinking. This course is fully integrated with Moodle, the IES online learning platform. Students will be required to actively access and interact with resources on this platform. For a better understanding of class engagement, please see the following grading rubric for student participation:

A – Excellent Participation
The student's contributions reflect an active reading of the assigned bibliography. Skillfully synthesizes the main ideas of the readings and raises questions about the applications and implications of the material. Demonstrates, through questions and comments, that he or she has been capable of relating the main ideas in the readings to the other information discussed in the course, and with his or her own life experience. The student makes informed judgments about the readings and other ideas dis- cussed in class, providing evidence and reasons. The student respectfully states their reactions about other classmates' opinions and can contribute to the inquiry spiral with other questions. The student gets fully involved in the completion of the class activities.

B – Very Good Participation
The student's contributions show that the assigned materials are usually read. Most of the time the main ideas are identified, even though sometimes it seems that applications and implications of the information read were not properly reflected upon. The student is able to construct over others' contributions, but sometimes seems to interrupt the shared construction to go over tangents. They are respectful of others' ideas. Regularly involved in the activities but occasionally loses concentration or energy.

C – Regular Participation
The participant evidences a regular reading of the bibliography, but in a superficial way. He/she tries to construct over others' ideas, but commonly provides comments that indicate lack of preparation about the material. Frequently, contributions are shallow or unarticulated with the discussion in hand.

F – Insufficient Participation
Consistently, the participant reads in a shallow way or does not read at all. Does not participate in an informed way and shows lack of interest in constructing over others' ideas.

b) Midterm Exam – 30%

The midterm exam will be taken in-class and will consist of open-ended questions (long and short answers). Topics and materials that have been covered before the midterm will be evaluated on the exam.

c) Assignment (business challenge) – 20%

Students will work in teams on a group project assigned by the teachers. The project will require students to solve a specific real-world challenge, acting as entrepreneurs. Students will have dedicated time in class to begin the project and will also need to dedicate time to the assignment at home. Students will then be asked to present their group's work in a PowerPoint presentation. More details will be provided during the course.

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d) Final Exam – 50%

The final exam will cover content from the mid exam onwards and will contain open-ended and multiple-choice questions.

Please note:

Students will be given additional information regarding the requirements of the assignment and about deadlines in class.

LEARNING OUTCOMES:

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

- Explain the difference between linear and circular economy and understand the environmental limits that business and society are currently facing
- Describe the European Union's Circular Economy Action Plan and the European Green Deal
- Acquire background and contextual knowledge about Sustainable Development
- Understand the concept of circular economy and circular business models
- Understand what sustainable and circular business models mean and learn from European case studies
- Describe circular startups and refer to the real-world experiences of circular entrepreneurs
- Explain the concept of sustainable/circular value proposition and how to concretely implement it
- Concretely develop a strategy plan for a company implementing circular economy principles (business challenge)
- Demonstrate a deep knowledge of circular economy and how it works in different industrial contexts, i.e., agriculture, textile, food, and plastics.

ATTENDANCE POLICY:

As a member of our class community, you are expected to be present and on time every day. Attending class has an impact on your learning and academic success. For the reason, the IES Abroad Milan attendance policy allows for the following number of absences, which are intended to be used for physical and mental health reasons:

- THREE (3) absences in each Italian language course,
- TWO (2) absences in each Area Studies course,
- ONE (1) absence in each seminar course or course meeting 1 day a week,
- ZERO (0) absences in each course of individual music instruction.

Every absence beyond this allowance will automatically result in a penalty of 2 percentage points off the final grade. SEVEN (7) absences will result in a failing grade in Italian language and Area Studies courses. FOUR (4) absences will result in a failing grade in seminar or 1-day-a-week courses. Failure to attend a scheduled exam, test, quiz, or presentation will automatically result in an F grade on that assessment.

ACADEMIC INTEGRITY CODE: Students are expected to abide by the IES Abroad Code of Academic Integrity. All work submitted by a student for academic credit should constitute the student's own original work. Any work submitted for academic credit may be subject to review by a textual similarity detection service for the detection of plagiarism and AI usage.

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CONTENT:

Week	Content	Assignments
Week 1 *Session 1 (11th February)*	**Introduction to the Course I** **Why the circular economy?** • Professors' presentation of the course • Expectations of students • Learning Outcomes • Introducing Circular Economy I (CE)	Readings: • EllenMacArthur Foundation, Towards the Circular Economy. Economic and business rationale for an accelerated transition. Chapters 1, 2, and 3. *OPTIONAL*: • Zero waste life – TED Talk: https://www.youtube.com/watch?v=pF72px2R3Hg • World Economic Forum: "Surprising Facts About the Circular Economy"
Session 2 (13th February)	**Introduction to the Course II** **Why the circular economy?** • Introducing Circular Economy II (CE)	Readings: • Stahel, W.R., The circular economy (2016). Nature, 531, 435-438. *OPTIONAL*: • McDonough, William. Cradle to Cradle: Remaking the Way We Make Things (2002)
Week 2 *Session 3 (18th February)*	**SDGs, CSR, and the creation of shared value** • Agenda 2030 and its Sustainable Development Goals/SDGs • The link between the UN's Sustainable Development Goals and Circular Economy	Readings: • Porter, M. E., & Kramer, M. R. (2011). Creating Shared Value: Harvard Business Review. From the Magazine (January–February 2011). • Sustainable Development Goals Overview: https://www.undp.org/sustainable-development-goals • The Sustainable Development Goals report 2022 (pages 1-25). *OPTIONAL:* • Parmar, B. L., Freeman, R. E., Harrison, J. S., Wicks, A. C., Purnell, L., & De Colle, S. (2010). Stakeholder theory: The state of the

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		art. Academy of Management Annals, 4(1), 403-445.
Session 4 (20th February)	**COP27 and European Policies on CE** • A global look at CE • COP27 • The EU's Circular Economy Package • Closer look at the EU's Resource efficiency, CE policy, and the European Green Deal	Readings: • COP27, Sharm el-Sheikh Climate Change Conference • The Circularity Gap Report (2022) • COP27: https://www.youtube.com/watch?v=yBBExVFidw4 • The European Deal Post Covid https://ellenmacarthurfoundation.org/articles/the-european-green-deal-and-a-post-covid-19-prosperity • The European Green Deal: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en *OPTIONAL:* • EU resource efficiency and the circular economy: https://www.europarl.europa.eu/factsheets/en/sheet/76/resource-efficiency-and-the-circular-economy • European Circular Economy Action Plan
Week 3 *Session 5 (25th February)*	**Circular Entrepreneurship: frameworks and tools for designing the opportunities** • RESOLVE Model • Moonfish Model • Circular Value Chain	Readings: • Growth within: a circular economy vision for a competitive Europe: https://ellenmacarthurfoundation.org/growth-within-a-circular-economy-vision-for-a-competitive-europe
Session 6 (27th February)	**"Linear" business model** • Linear Business Models: examples and limits of the model • Case studies and examples	Readings: • Osterwalder, A., & Pigneur, Y. (2010). Business model generation. John Wiley & Sons. • The business model canvas: https://www.youtube.com/watch?v=QoAOzMTLP5s

Week 4 *Session 7* *(4th March)*	**"Circular" business model** • Circular Business Models: differences with the linear approach • Case studies and examples	Readings: • Geissdoerfer, M., Morioka, S., De Carvalho, M., & Evans, S. (2018). Business models and supply chains for the circular economy. https://doi.org/10.17863/CAM.27629
Session 8 *(6th March)*	**Sustainable and circular entrepreneurship** • Definitions • How to design a sustainable/circular value proposition • Analysis and schematization of an existing business model (Apple iPhone)	Readings: • Lewandowski, Mateusz. "Designing the business models for circular economy—Towards the conceptual framework." Sustainability 8.1 (2016): 43. • Greco, A., & de Jong, G. (2017). Sustainable entrepreneurship: Definitions, themes and research gaps. University of Groningen. Working Paper series. • Adidas For Parley: https://www.finchandbeak.com/1333/value-proposition-design-for-the-circular.htm (Download the report and watch the video) • «Let's help SMEs to go circular», KPMG and European Commission, https://ec.europa.eu/environment/sme/pdf/Training%20materials_English.pdf
Week 5 *Session 9* *(11th March)*	**Circular entrepreneurship and business models** • Circular business models: taxonomies • Case studies	Readings: • Urbinati, Andrea & Chiaroni, Davide & Chiesa, Vittorio. (2017). Towards a New Taxonomy of Circular Economy Business Models. Journal of Cleaner Production. 168. 487-498. • Geissdoerfer, M., Pieroni, M. P., Pigosso, D. C., & Soufani, K. (2020). Circular business models: A review. Journal of Cleaner Production, 277, 123741. • Zucchella & Urban (2019), Circular Entrepreneurship, Chapter 3, pag. 75-86. https://www.youtube.com/watch?v=gVimMEI2u2w
Session 10 *(13th March)*	**Midterm Recap / preparation for the exam** • Q&A session	

Week 6 *Session 11* *(18th March)*	**Midterm Exam**	
Session 12 *(20th March)*	**Challenge presentation** • Challenge presentation • Work in class	
Session 13 *(25th March)*	**Life Cycle Assessment** • Life cycle analysis: extraction, production, distribution, use, end of life • Environmental impact assessment	Readings: • Peña, Claudia, et al. "Using life cycle assessment to achieve a circular economy." The International Journal of Life Cycle Assessment 26 (2021): 215-220. • Finnveden, Göran, et al. "Recent developments in life cycle assessment." Journal of environmental management 91.1 (2009): 1-21. *OPTIONAL:* • Horne, Ralph & Grant, Tim & Verghese, Karli. (2009). Life Cycle Assessment: Principles, Practice and Prospects.
Week 7 *Session 14* *(27th March)*	**Sustainable entrepreneurship: a case study** • Desso	Readings: • https://ellenmacarthurfoundation.org/circular-examples/cradle-to-cradle-design-of-carpets
Session 15 *(1st April)*	**Circular economy and the textile industry** • The impact of textile industry • Rethinking the textile industry • Case studies	Readings: • https://archive.ellenmacarthurfoundation.org/explore/fashion-and-the-circular-economy (read and watch the videos) • Napier, Elizabeth and Sanguineti, Francesca, "Fashion Merchandisers' Slash and Burn Dilemma: A Consequence of Over Production and Excessive Waste?" (November 1, 2018). https://ssrn.com/abstract=3289411 Videos: https://www.youtube.com/watch?v=EDYHvFycA7Y https://www.youtube.com/watch?v=hVbzzGsh6jI
Week 8 *Session 16* *(8th April)*	**Digital technologies and circular business models**	Readings: • Pagoropoulos, Aris, Daniela CA Pigosso, and Tim C. McAloone. "The emergent role of

	• Digital Technologies • The role of Digital Technologies in the adoption of CE	digital technologies in the Circular Economy: A review." Procedia cirp 64 (2017): 19-24. • Chiaroni, Davide, et al. "Digital technologies in the business model transition towards a circular economy." Resources, conservation and recycling 168 (2021): 105286.
Session 17 (10th April)	**Circular entrepreneurship: a case study** • The role of platforms in CE	Readings: • Schwanholz, Julia, and Sina Leipold. "Sharing for a circular economy? An analysis of digital sharing platforms' principles and business models." Journal of Cleaner Production 269 (2020): 122327.
Week 9 *Session 18 (15th April)*	**Business experience** • Tondo (Francesco Castellano)	
Session 19 (17th April)	**Circular Economy & Agriculture-Livestock** • Agriculture and livestock as sources of gas emissions • How agriculture can innovate to be more sustainable and to secure food supply for the future. • Case studies	Readings: • Emissions due to agriculture: https://www.fao.org/3/cb3808en/cb3808en.pdf • Circular agriculture for sustainable rural development, United Nations: https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/PB_105.pdf *OPTIONAL:* • Urban Farming: https://www.veolia.com/en/solution/urban-farming-solution-helping-feed-cities • https://www.smartgreenpost.com/2020/07/02/urban-farming-poty-the-vertical-vegetable-garden-that-you-can-grow-on-your-home-balcony/

Week 10 *Session 20* *(22nd April)*	**Circular Economy & Industrial sector (Electronic and metal industry)** • How manufacturing companies can innovate to be more sustainable • Case studies	Readings: • Facilitating Trade Along Circular Electronics Value Chains: https://www.weforum.org/whitepapers/facilitating-trade-along-circular-electronics-value-chains/ • Circular economy: Steel - central to the circular economy: https://www.eurofer.eu/issues/environment/circular-economy/ *OPTIONAL:* • *https://www.irena.org/Publications/2023/Jul/Towards-a-Circular-Steel-Industry*
Session 21 *(24th April)*	**Student group challenge presentations**	
Week 11 *Session 22* *(29th April)*	**Final Recap/ preparation for the exam** • Q&A session	

The instructor's presentations, articles, and class materials will be available online on the Moodle webpage after each lecture. The required material (articles and book chapters) will be uploaded on Moodle the week before their due date.

REQUIRED READINGS

- Stahel, W.R., The circular economy (2016). Available: https://www.nature.com/news/the-circular-economy- 1.19594 Nature 531, 435–438 (4 pages).
- EllenMacArthurFoundation, Towards the Circular Economy. Economic and business rationale for an accelerated transition. https://ellenmacarthurfoundation.org/towards-the-circular-economy-vol-1-an-economic-and-business-rationale-for-an
- https://ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview
- The butterfly diagram: visualising the circular economy: https://ellenmacarthurfoundation.org/circular-economy-diagram
- Growth within: a circular economy vision for a competitive Europe: https://ellenmacarthurfoundation.org/growth-within-a-circular-economy-vision-for-a-competitive-europe
- Porter, M. E., & Kramer, M. R. (2011). Creating Shared Value: Harvard Business Review. From the Magazine (January–February 2011).
- Sustainable Development Goals Overview: https://www.undp.org/sustainable-development-goals
- The Sustainable Development Goals report 2022: https://unstats.un.org/sdgs/report/2022/
- COP27, the Glasgow climate pact: https://unfccc.int/news/cop27-reaches-breakthrough-agreement-on-new-loss-and-damage-fund-for-vulnerable-countries
- The Circularity Gap Report (2022): https://www.circularity-gap.world/2022
- European Circular Economy Action Plan: https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN

- EU resource efficiency and the circular economy: https://www.europarl.europa.eu/factsheets/en/sheet/76/resource-efficiency-and-the-circular-economy
- The European Deal Post Covid: https://ellenmacarthurfoundation.org/articles/the-european-green-deal-and-a-post-covid-19-prosperity
- The European Green Deal: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en
- Greco, A., & de Jong, G. (2017). Sustainable entrepreneurship: Definitions, themes and research gaps. University of Groningen. Working Paper series.
- Geissdoerfer, M., Pieroni, M. P., Pigosso, D. C., & Soufani, K. (2020). Circular business models: A review. Journal of Cleaner Production, 277, 123741.
- https://www.finchandbeak.com/1333/value-proposition-design-for-the-circular.htm
- https://www.un.org/development/desa/dpad/publication/un-desa-policy-brief-105-circular-agriculture-for-sustainable-rural-development/
- Zucchella, A., & Previtali, P. (2019). Circular business models for sustainable development: A "waste is food" restorative ecosystem. Business Strategy and the Environment, 28(2), 274-285.
- https://archive.ellenmacarthurfoundation.org/explore/food-cities-the-circular-economy
- Napier, Elizabeth and Sanguineti, Francesca, Fashion Merchandisers' Slash and Burn Dilemma: A Consequence of Over Production and Excessive Waste? (November 1, 2018). https://ssrn.com/abstract=3289411
- New Plastics Economy: https://ellenmacarthurfoundation.org/topics/plastics/overview
- A European strategy for plastics in the circular economy: https://www.europarc.org/wp-content/uploads/2018/01/Eu-plastics-strategy-brochure.pdf
- Urbinati, Andrea & Chiaroni, Davide & Chiesa, Vittorio. (2017). Towards a New Taxonomy of Circular Economy Business Models. Journal of Cleaner Production. 168. 487-498.
- Facilitating Trade Along Circular Electronics Value Chains: https://www.weforum.org/whitepapers/facilitating-trade-along-circular-electronics-value-chains/
- Circular economy: Steel - central to the circular economy: https://www.eurofer.eu/issues/environment/circular-economy/
- Schwanholz, Julia, and Sina Leipold. "Sharing for a circular economy? An analysis of digital sharing platforms' principles and business models." Journal of Cleaner Production 269 (2020): 122327.

RECOMMENDED READINGS:

- De Angelis, R. (2018). Business models in the circular economy: Concepts, examples and theory. Springer.
- Lacy, P., & Rutqvist, J. (2015). Waste to wealth: The circular economy advantage (pp. 3-18). London: Palgrave Macmillan.
- McDonough, William. Cradle to Cradle: Remaking the Way We Make Things (2002)
- Zucchella, A., Magnani, G. (2016). International entrepreneurship. Theoretical foundations and practices. Second Edition. Palgrave Macmillan, ISBN: 9781137520012.

INSTRUCTOR'S BRIEF BIO: Andrea Urbinati is Senior Assistant Professor of Strategy & Business Design at the School of Industrial Engineering of LIUC Università Cattaneo, Italy. His research interests are in the fields of circular economy and circular business models. He is Deputy Director of the Green Transition Hub of LIUC Università Cattaneo and Member of the Core Faculty of LIUC Business School, the School of Management of LIUC Università Cattaneo.

Mario Fontanella Pisa is a dedicated Research Fellow specializing in Circular Economy, particularly focusing on the transition of Small and Medium Enterprises (SMEs) towards more sustainable practices. He currently holds a research fellow position at LIUC - Università Carlo Cattaneo, financed by Intesa Sanpaolo, where he delves into the intricate aspects of circular economy. His keen interest lies in the realms of corporate sustainability and circular economy, highlighting his commitment to fostering eco-friendly business practices.