

(19-01-21)

Topic for internship	Professor in Brazil	University	Extra info & Example projects
Biofuel	Fábio de Ávila Rodrigues Marcio Aredes Martins Ronaldo Perez	UFV	<ul style="list-style-type: none"> • Simulation and optimization of biorefineries, mainly related to the production of biofuels (e.g. bioethanol, biodiesel, levulinic acid with professors Fábio/Marcio/Rita and technical and economic viability, competitiveness, industrial layout, legislation and investments with professor Ronaldo) • Examples of previous internships: <ul style="list-style-type: none"> ○ Energy use of biogas from landfill effluent - Aspen modelling (Fabio / Lex Verheem, 2) ○ Aspen modeling of biodiesel production via oil esterification (Fabio/ Joost Endepoel, 4) ○ Charcoal cooling in large rectangular furnace: modeling and CFD simulation (Marcio / Rob Hageman, 30)
	Isabel Cristina Pereira Fortes Vânia Marcia Duarte Pasa	UFMG	<ul style="list-style-type: none"> • Production and testing of biodiesel • Heterogeneous catalysis for the valorisation of fossil-based hydrocarbon streams (can be residual or crude oil) • Pyrolysis • Examples of previous internships: <ul style="list-style-type: none"> ○ Laboratory scale biodiesel production from waste cooking oil by heterogeneous catalysis or enzymatic catalysis (Robin van Schendel) ○ Biodiesel synthesis from catalytic route using alternative catalysts (Ieva Liobyte) ○ Production and characterisation of biocomposites from macauba residue (Hugo Mermet) ○ Biobased polyurethane coatings synthesized from biomass residue (Rick van Eijk, 37) ○ Determination of kinetic model parameters for biodiesel production using heterogeneous catalysts (Rosemarie de ruijter, 21)
	Prof Marcela Rabelo Menezes Prof. Laura Hamdan de Andrade	PUCminas	<ul style="list-style-type: none"> • Improvement of biodiesel production • Examples of previous internships: <ul style="list-style-type: none"> ○ Purification of glycerin derivate from biodiesel production by adsorption and ion exchange (Tautvydas Kireilis, 10, 39) ○ Reuse of residual cooking oil as raw material for biodiesel production (Enrique Smolders, 11) ○ Production of biodiesel from bovine tallow (Rick Boogaard, 38)
	Prof Leandro Vinicius Alves Gurgel	UFOP	<ul style="list-style-type: none"> • Pretreatments of sugarcane bagasse for second – generation ethanol production. Performing pretreatments on sugarcane bagasse samples, unit operations quantification of the biomass components such as cellulose, hemicelluloses and lignin, as well as data treatment and interpretation (65).
Biogas	André Pereira Rosa	UFV	<ul style="list-style-type: none"> • Diagnosis and optimization of biogas production from industrial, municipal, and agricultural effluents (e.g. effluent treatment and use of by-products, anaerobic digestion, monitoring of decentralized domestic sewage systems)
	Sérgio Francisco de Aquino	UFOP	<ul style="list-style-type: none"> • Hydrolysis of lignocellulosic waste for biogas production and/or recovery of by-products; Analysis and removal of micropollutants present in wastewater and drinking water, in particular pharmaceuticals, pesticides and cyanotoxins. • Examples of previous internships: <ul style="list-style-type: none"> ○ Anaerobic digestion of residues/effluents for energy and added value products recovery, (Cindy Giel, 55) ○ post treatment of effluent from anaerobic biogas reactors treating vinasse and hemicellulose (Arturo Diego Sanchez)
Biorefinery	Prof. Dr. Jorge Luiz Colodette	UFV	<ul style="list-style-type: none"> • Biorefinery of hemicellulose • Examples of previous internships: <ul style="list-style-type: none"> ○ Production of tissue, printing and writing, folding carton and board papers of much superior qualities (strength) than those currently produced with hardwood and grass fibers (Jennifer Bannink, 17)
	Prof. Dr. Boutros Sarrouh	UFSJ	<ul style="list-style-type: none"> • Projects involving production of hydrolytic enzymes from isolated microorganisms as well as the fractionation of lignocellulosic residues for production of bio-products of industrial interest by fermentative processes. • Examples of previous internships:

			<ul style="list-style-type: none"> ○ Production of enzymes from isolated microorganisms aiming to enzymatic treatment and fermentation of biomass residues for the production of bio-products of industrial interest (Ruben Bond, 43) ○ Chemical and enzymatic treatment of lignocellulosic residues for the production of bio-products of industrial by interest by fermentation processes (48, 51)
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Biorefinery - ASPEN modelling	Fábio de Ávila Rodrigues	UFV	<ul style="list-style-type: none"> ● Examples of previous internships: <ul style="list-style-type: none"> ○ Aspen modeling of furfural and hydroxymethyl furfural (HMF) production via dehydration of pentoses and hexoses (Fabio / Matthijs Muilwijk, 3) ○ Simulation and economic evaluation of 5-hydroxymethylfurfural (HMF) and furfural production from biomass (Fabio / Jesse Huebben, 45) ○ Simulation and economic evaluation of levulinic acid production from biomass (52)
Wastewater treatment	Ana Augusta Passos Rezende Ann Honor Munteer	UFV	<ul style="list-style-type: none"> ● Combination of physical, chemical and biological processes for improved wastewater treatment and management (e.g. reuse of waste and effluents, decentralized sewage systems, environmental quality, advanced wastewater treatment, ecotoxicology). ● See example assignment descriptions: <ul style="list-style-type: none"> ○ Removal of bioactive substances during wastewater treatment (Joris Mallens, 40)
	Laura Hamdan de Andrade	PUCminas	<ul style="list-style-type: none"> ● Treatment of effluent using membrane distillation. ● Wastewater treatment; water reuse; membrane separation process; membrane distillation; physicochemical analysis. ● Examples of previous internships: <ul style="list-style-type: none"> ○ Electrodialysis for gold mining wastewater treatment (Joost Endepoel, 18) ○ Nanofiltration and advanced oxidation process for textile wastewater treatment (35, 41)
	César Rossas Mota Filho	UFMG	<ul style="list-style-type: none"> ● Reuse of organic waste and treatment of wastewater. It can be municipal wastewater but for instance, also wastewater from festival toilets. ● Pilot plant that turns organic food residues from university into biogas. The system also involves an UASB-reactor + Anamox ● Examples of previous internships: <ul style="list-style-type: none"> ○ Characterise (measure flow rates, as well as COD, BOD, P, N, NH₃, DO, etc) the liquid effluent from the food waste methanisation platform in operation at UFMG campus and provide a preliminary design for the Nitrogen removal pilot-scale systems that will be implemented (Paul Hankinson) ○ Determine the effects of liquid deodorants (those used in chemical toilets) on biological wastewater treatment using anaerobic and/or aerobic processes (Lennard Visser) ○ Investigate the toxic effects of the waste of chemical toilets on the bacterial processes in sewage treatment plants and see if there are possible environmental friendly alternatives (Niels de Koster, 20) ○ What is the cheapest and most effective way to remove and collect microalgae from water treated in sewage treatment plants? (Sophie Lurquin, 19)
	Barbara Caroline Ricci Nunes Raquel Sampaio Jacob	PUCMinas	<ul style="list-style-type: none"> ● Removal of pharmaceuticals from wastewater with osmotic membrane reactor ● Ecotoxicity and biodegradation of pharmaceuticals in wastewater ● Examples of previous internships: <ul style="list-style-type: none"> ○ A toxicity assessment of water contamination by pharmaceutical drugs (prof Raquel / Klaas Daalderop & Debora Demandi, 36) ○ Performance of an Anaerobic Osmotic Membrane Bioreactor for Domestic Wastewater Treatment Aiming at Potable Water Reuse (Prof Barbara / Celine Mancel, 26) ○ removal of estrogenic activity and biologically active compounds, by the YES assay and chronic toxicity test with Ceriodaphnia dubia, in an anaerobic osmotic bioreactor combined with membrane distillation (Prof Barbara, 59)
	Camila Costa de Amorim	UFMG	<ul style="list-style-type: none"> ● Removal of contaminants from different residues (from the dye industry and mining industry) using chemical oxidation. ● Examples of previous internships:

			<ul style="list-style-type: none"> Life cycle assessment (LCA) of different oxidation processes applied on the treatment of water and wastewater (29)
	Prof Sônia Rocha	UFMG	<ul style="list-style-type: none"> Removal of strontium by precipitation with carbon dioxide (42)
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Drinking water treatment	?	UFV	<ul style="list-style-type: none"> Management of the drinking water treatment plant (DWTP) for UFV (city of Viçosa) Improvement of classical water treatment with sedimentation, filtration, and chlorination.
	Roberta Eliane Santos Froes Silva.	UFOP	<ul style="list-style-type: none"> Preparation and functionalization of pectin hydrogel for removal of arsenic and inorganic contaminants from drinking water (56) (<i>no offer for August '20</i>)
Reuse of residual streams	Claudio Mudado Silva	UFV	<ul style="list-style-type: none"> Combination of physical, chemical and biological processes for reuse or recycle of residual streams (e.g. industrial wastewater reuse, industrial waste recycling) See example assignment description: <ul style="list-style-type: none"> Thermophilic treatment of pulp mill effluent using granular sludge (Lynn Joostens, 8) Respirometric tests for prediction of toxic effects in the effluent treatment plant and drainages optimization during maintenance shutdowns on pulp and paper mills (Brian Barbieri, 9) Improvement of the anaerobic digestion process of biosludge from paper & pulp industry (Lara Lobotic, 46) Alternatives of energetic recovery of organic residues in pulp and paper plants according to biorefinery concept (Alessio belmondo, 6)
	Raphael Tobias de Vasconcelos Barros	UFMG	<ul style="list-style-type: none"> Re-use of industrial and municipal solid waste (e.g. re-use of construction and demolition waste, e-waste, composting of organic waste,...) See example assignment description: <ul style="list-style-type: none"> Possibilities for the re-use of construction waste (Hugh Rhodes, 1B) Possibilities for the re-use of E-waste (Peter Huaman, 1A) Possibilities for the improvement of composting of household waste in Minas Gerais (Jens Vloedgraven, 24) Improvement of collecting, separating and re-using of organic domestic waste (Max Post, 32, 47)
	Marcio Aredes Martins	UFV	<ul style="list-style-type: none"> Growth of microalgae on residue streams (waste water) for production of biofuels, food and feed. Research topics are; <ol style="list-style-type: none"> Protein extraction and concentration from microalgae for food and feed. Automation and real time control for increasing microalgae productivity in open ponds. Microalgae harvesting technologies for increasing oil productivity Examples of previous internships: <ul style="list-style-type: none"> Microalgae harvesting technologies for increasing oil productivity (marcio / Michael Boot, 31)
	Prof. Marcelo S. Batista	UFSJ	<ul style="list-style-type: none"> Examples of previous internships: <ul style="list-style-type: none"> Biomass use for obtaining carboxylic acid (Robin Taks, 50)
Food Technology	Frederico Barros	UFV	<ul style="list-style-type: none"> Bioactive compounds in foods: extraction, quantification and antioxidant properties. Laboratory work; food natural colorants; anthocyanins; solvent extraction; ultrasound; antioxidant capacity. Improving food quality and human health through grain chemistry and technology. Laboratory work; dietary fibre; resistant starch; tannins; bioactive compounds; food processing

	Orlando David Henrique dos Santos	UFOP	<ul style="list-style-type: none"> • Evaluation of the potential of plant extracts as an environmental friendly product for food and pharmaceutical applications (61)
	Frank Silva Bezerra	UFOP	<ul style="list-style-type: none"> • Study of the effects of Hesperidin in mice submitted to mechanical ventilation (62).
	Roberta Eliane Santos Fores-Silva	UFOP	<ul style="list-style-type: none"> • Development of methodologies for determining toxic and essential elements in environmental and food samples; development of adsorbent materials of metals for environmental applications (<i>no offer for August '20</i>)
Environmental Impact Assessment (EIA)	Camila Costa de Amorim	UFMG	<ul style="list-style-type: none"> • Study at procedures for EIA dairy industry, wind energy and biogas production in Brazil and NL • Examples of previous internships: <ul style="list-style-type: none"> ◦ Compare and contrast EIA procedures and requirements for dairy industries, wind energy facilities and biogas generation for energy production in Minas Gerais and The Netherlands (28)

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Building and Construction	Guilherme Jorge Brigolini Silva	UFOP	<ul style="list-style-type: none"> • Use of industrial waste for sustainable building materials (e.g. material analysis for social housing, reuse of iron ore tailings from dams, alkali activated cements produced from biomass) (63) • <i>Not recommended if you have dust allergy.</i> • For more information, please look at https://reciclos.ufop.br/
Nano-materials and biomaterials	Herman Sander Mansur	UFMG	<ul style="list-style-type: none"> • Works mainly with nano-materials and biomaterials. For instance for medical purposes & environmental engineering • Looks for links between industries. Waste of one company can be a resource for another company.
Business and Innovation	Adriana Ferreira de Faria	UFV	<ul style="list-style-type: none"> • Research on innovation environments in Minas Gerais (e.g. startups on biotechnology, business management, incubators, technology parks) • For more information, please look at https://www.inovadatamg.com.br/
Geosciences Ecosystem services	Sônia Maria Carvalho Ribeiro Rodrigo Affonso de Albuquerque Nóbrego	UFMG	<ul style="list-style-type: none"> • The look at economic and environmental value of nature reserves and effect of environmental disasters on these values (from instance mining industry) • Group works a lot with GIS and programme that was developed by department • Examples of previous internships: <ul style="list-style-type: none"> ◦ From environmental disaster to sustainable socio-biodiverse futures: technical innovations for sustainable land use management in the buffer area of Rio Doce State Park, Brazil (Ivo Verhaar, 44)
		FAPEMIG	
		Waycarbon	
Biopolymers & biomolecules	Rita Superbi	UFV	<ul style="list-style-type: none"> • Design of novel processes for biomolecules extraction using ionic liquids as alternative solvents. • Examples of previous internships: <ul style="list-style-type: none"> ◦ Extraction of biomolecules using ionic liquids as adjuvants in polymer-based aqueous biphasic systems(Amber Jaspars, 27)
	Renata Costa Silva Araújo Daniel Bastos de Rezende	UFMG/LEC	<ul style="list-style-type: none"> • Research on waste pyrolysis, from which it is possible to obtain fuel fractions that can be studied. • Development of polyurethane coating synthesis and analysis to finding application for coatings. • Examples of previous internships: <ul style="list-style-type: none"> ◦ Biobased polyurethane coatings synthesized from biomass residue (Rick van Eijk, 37) ◦ Improvement and study of biopolyurethane coatings based on Macauba (53)

	Professor Frederico Barros	UFV	<ul style="list-style-type: none">• Extraction and quantification of bioactive compounds from fruits (54)
Ecology	Yasmine Antonini.	UFV	<ul style="list-style-type: none">• Restoration of forests using animals as ecological tools to improve process of colonization and ecological succession (57)
Solar energy	Marco Antonio Schiavon	UFSJ	<ul style="list-style-type: none">• Quantum dots solar cells (49)