



UNIVERSIDADE FEDERAL DE PELOTAS
Faculdade de Agronomia Eliseu Maciel
Programa de Pós-Graduação em Ciência e Tecnologia de Alimentos

PROGRAMA ANALÍTICO E EMENTA DE DISCIPLINA DA PÓS-GRADUAÇÃO

IDENTIFICAÇÃO				
Disciplina GRAIN PROCESSING TECHNOLOGIES			Código 0220063	
Departamento Departamento de Ciência e Tecnologia Agroindustrial (DCTA)			Sigla da Unidade FAEM	
Professor Responsável pela Disciplina NATHAN LEVIEN VANIER			Matrícula do SIAPE 2260563	
Outros Professores Envolvidos Fabio Clasen Chaves, FAEM-DCTA Maurício de Oliveira, FAEM-DCTA Moacir Cardoso Elias, FAEM-DCTA				
Semestre Letivo	Duração (semanas)	Carga horária semanal 08		Carga horária total 68 h
I () II (X)	8,5	Teórica: 8h Prática: 0 h	Total: 8 h	Número de créditos 4
Pré-requisitos: Química de grãos				
EMENTA				
Consumer trends in food consumption. Overview of grain production, consumption and industrial technologies. Industrialization of pulse foods. Fermentation. Wheat processing. Baking and dough rheology, cakes, pastries, muffins and bagels. Cookies, biscuits and crackers. Extrusion processing for pasta and expanded extrudates production. Corn processing. Oat processing. Emerging technologies for improving nutritional properties of grains and derivatives. Fortification of grain-based foods. Oilseeds processing. Soy concentrates and isolates. Coffee processing and quality. Rice processing.				
CURSOS PARA OS QUAIS É MINISTRADA				
1. Programa de Pós-graduação em Ciência e Tecnologia Agroindustrial 2. Mestrado Profissional em Ciência e Tecnologia de Alimentos 3. Programa de Pós-Graduação em Ciência e Tecnologia de Sementes 4. Programa de Pós-Graduação em Agronomia			(AC) ¹ (OP) (OP) (OP)	
Obs. 1 = (OA) Obrigatória (OP) Optativa (AC) Área de Concentração (DC) Área de Domínio Conexo				
PROGRAMA ANALÍTICO				HORAS-AULA
1.	Consumer trends in food consumption			2
2.	Overview of grain production, consumption and industrial technologies around the world			2
3.	Industrialization of pulse foods – green beans, dry beans, canned beans, sprouted beans and fermented pulses			2
4.	Innovative technologies of pulses processing – quick-cook dehydrated pulses, pulse roasting, dielectric heating, pulsed electric field treatment, high-pressure processing, irradiation			4
5.	Fermentation: origins and applications, historical background, factors affecting fermentation, food safety and nutritional implications, flours/porridges/beverages examples, soy based fermented foods			4
6.	Wheat processing – grain quality, semolina quality, wheat milling, mill products and their uses, wheat segregation, flour			4

	treatments and additives, food safety	
7.	Baking and dough rheology, cakes, pastries, muffins and bagels	4
8.	Cookies, biscuits and crackers – processing and factors that affect quality parameters and consumer's acceptability	2
9.	Extrusion processing for pasta and expanded extrudates production – extrusion parameters and their effects on end-product quality, pasta quality, expanded extrudates quality, research achievements and trends	4
10.	Corn processing – QPM maize, dry-milling, wet-milling, corn flakes production and processing parameters	4
11.	Oat processing – major uses in food industry, processing and quality requirements	2
12.	Emerging technologies for improving nutritional properties of grains and derivatives	2
13.	Fortification of grain-based foods – criteria for food fortification, methods for cereal fortification, compounds used as a source of minerals and vitamins, future prospects	2
14.	Oilseeds processing – oil extraction and refining, utilization of co- or by-products, oxidative quality of soybean oil, rice and maize oil quality, food uses of refined oils	8
15.	Soy concentrates and isolates – functional properties, nutritional properties and food applications	2
16.	Coffee processing and quality	4
17.	Rice processing – conventional and advanced processing, parboiling, Chinese food uses of rice, quality traits, instant cooking rice, pigmented rice, aromatic rice quality	4
18.	Exams	4

REFERÊNCIAS

1.	Colin Wrigley, Harold Corke, Charles Walker. Encyclopedia of grain science. Elsevier, Academic Press. 2004. 1392 p.
2.	Colin Wrigley, Ian Batey, Diane Miskelly. Cereal grains: Assessing and maintaining the quality. Elsevier. 2017. 832 p.
3.	Jim Smith, Edward Charter. Functional food products development. Blackwell Publishinf Ltd. 2010. 307 p.



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