

Exam 1

“Good” science
 Many fields involved in cooking
 Food molecules
 Water
 Inorganics
 Small organics
 Macromolecules



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Small Organics
 Vitamins, sugars, metabolites
 Macromolecules - Fats/Lipids
 Long carbon/hydrogen chains
 Hydrophobic
 Fatty acids, triglycerides, phospholipids
 Saturated vs. Unsaturated



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Proteins – polymers of amino acids
 Side chain/Side group tunes properties
 Structure determines function
 Formed by dehydration/condensation
 Carbohydrates – C/H/O molecules
 “Simple” sugars – monosaccharides
 “Simple” sugars – disaccharides
 Polysaccharides – sugar polymers



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Polysaccharides
 Starch – glucose polymer, plants
 Amylose – unbranched
 Amylopectin - branched
 Binds water, thickening agent
 Formed by dehydration/condensation
 Broken down by amylase (hydrolysis)



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Polysaccharides
 Glycogen – glucose polymer, animal
 Highly branched, compact
 Binds water, thickening agent
 Formed by dehydration/condensation
 Broken down by hydrolysis



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Polysaccharides
 Cellulose – β -glucose polymer, plants
 Rigid, tough, cross-linked fibers
 Insoluble vs. soluble fiber
 Binds water
 Ruminant animals break down with
 bacteria in their rumen




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Milk and Dairy
Milk – aqueous phase
Milk – fat phase
Lactase & lactose intolerance
Milk proteins – whey & casein
Curdling
Acids and Bases




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Homogenization
Pasteurization
Milk foams – protein or fat
Butter – whip it good...
Fermentation – yogurt and others

Good luck!



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