# The shelf life of wines: analytical and sensory approaches

*Université de Bordeaux*

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**Name of the hosting institution in France**: Université de Bordeaux  
**Name of the host laboratory / research team**: Unité recherche Œnologie, ISVV  
**Address**: 210 chemin de leysotte 33882 Villenave d’ornon  
**Website**: https://www.isvv.u-bordeaux.fr/fr/oenologie.html  
**Name of the supervisor**: Pons  
**Function**: Senior research scientist  
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## Internship offer

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<th>Topic of the internship (title)</th>
<th>The shelf life of wines: analytical and sensory approaches</th>
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<td>Proposed dates of the internship</td>
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<tr>
<td>Start</td>
<td>01/11/2022</td>
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**Scientific and academic objectives of the internship:**

The composition of wines evolves with exposure to oxygen during both barrel and bottle aging. The aroma can be altered through such oxidation, ultimately impacting wine quality. Oxidative changes in wine aroma can be positive or negative, depending on the compounds produced (or degraded), their concentrations, and their sensory threshold in wine. In wines, oxidation mechanisms involve reactive oxygen species (ROS) formation, yielding strong modifications of the chemical composition as well as the flavor of the wine.

For example, it has been recently found that an important aroma compound found at trace level (sub µg/L); 3-methyl-2,4-nonanodione, came from fatty acids oxidation. Thus, knowledge of fatty acid composition of wines, i.e. the amount of aromatic precursors, could contribute to the understanding of wine aroma degradation kinetics during aging. For that, fatty acid analysis will be performed in many young and old wines thanks to gas chromatography coupled with tandem mass spectrometry. Based on these results, applications relative to the study of wood addition on wine aroma stability and chemical composition will be envisioned. In addition, study of the wine ability to resist an oxidation stress will be studied thanks to electron paramagnetic approach. Thanks to this spectroscopic tool, the student will be, in charge of developing a new procedure to evaluate the ability of a wine to age a long time or not.

## Industrial partner

**Name**: Seguin Moreau  
**Role of the industrial partner in the internship project**: The industrial partner is interested in studying the effect of oxygen released during barrel aging on the flavor of wines. The partner will provide several wine samples from several vineyards.  
**Main contact**: Prida Andrei  
**Email**: aprida@seguin-moreau.fr

## Expected profile of applicant

**Level of study**: Master of science  
**Discipline**: Food chemistry, Enology, Food science  
**Prerequisite knowledge, qualities and skills**: Good laboratory practices; Excellent written and verbal communication skills. Basic analytical chemistry skills including SPE extraction and GC-MS. Some personal interests in wine tasting.  
**Other specific eligibility criteria**: Language: English or French